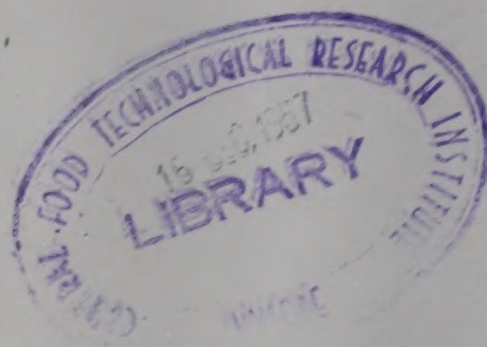


INDIAN SCIENCE CONGRESS ASSOCIATION
PROCEEDINGS OF THE
FORTY- SECOND SESSION
BARODA 1955
PART I

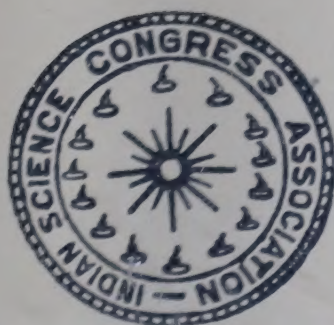
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INDIAN SCIENCE CONGRESS
ASSOCIATION

(Registered under Act XXI of 1860)

PROCEEDINGS
OF THE
FORTY-SECOND SESSION
BARODA — 1955



PART I
OFFICIAL MATTERS



PROCEEDINGS

OF THE

FORTY-SECOND

INDIAN SCIENCE CONGRESS

BARODA, 1955

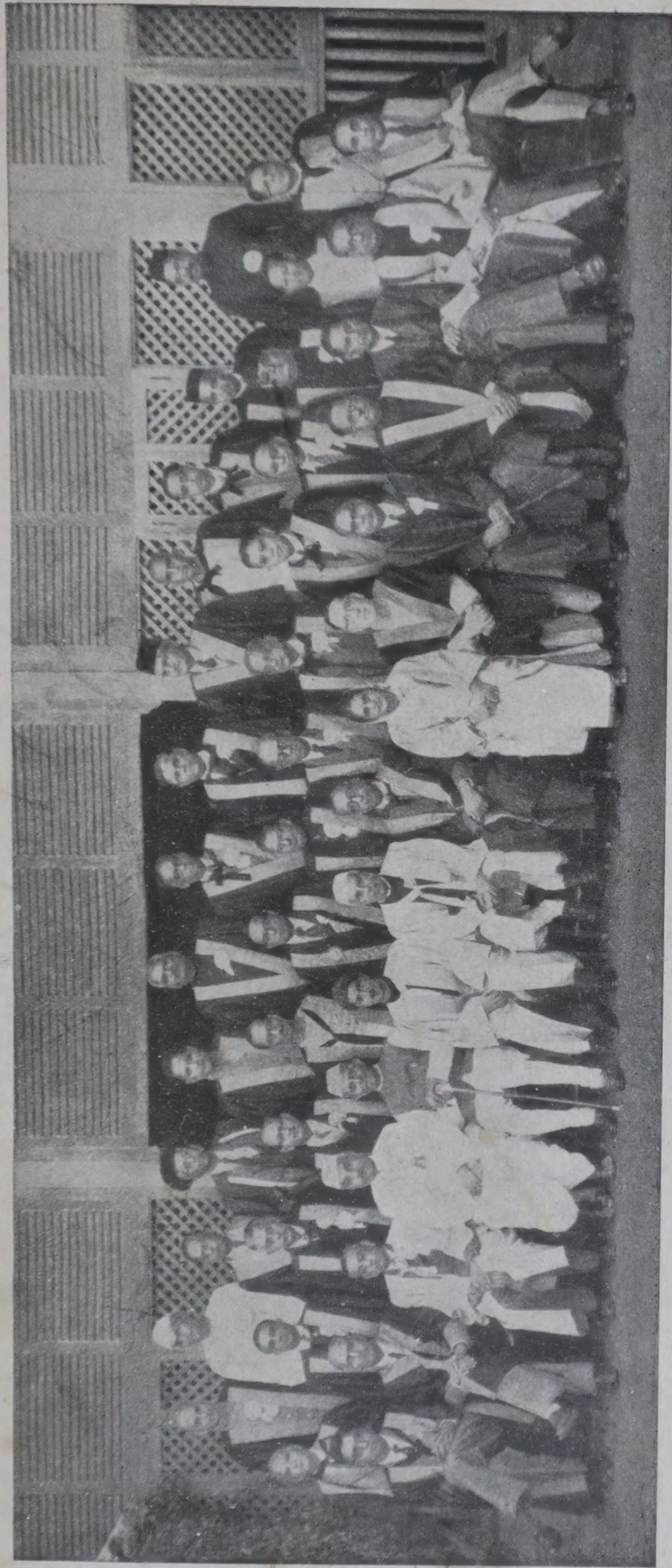
PART I

OFFICIAL MATTERS

CONTENTS

	PAGE
1. Officers of the Forty-Second Congress	1
2. Sectional Committees	5
3. Local Reception Committee	14
4. Arrangements for the Forty-Second Session	20
5. List of Delegates (Foreign)	20
6. List of Delegates (Inland)	21
7. Programme of the Session	26
8. Opening Proceedings	31
9. Goodwill Messages	36
10. Annual Report of the Indian Science Congress Association, 1954	38
11. Meetings of the Committees	49
12. Committee on Science and its Social Relations	58
13. Rules	63
14. Regulations	73
15. Statement of Accounts	79

INDIAN SCIENCE CONGRESS 42nd SESSION, BARODA, 1955



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 Shri D. M. Patel.

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 Smt. Kamalabai Tilak.
 Shri Suresh S. Tate.
 The Textile Association,
 India (Baroda Branch).
 Shri R. K. Tank.
 Shri K. K. Thakore.
 Mrs. Asmita K. Thakore.
 Smt. Kusum Thakore.

Shri Ismail M. Jariwala.
 Smt. Unny Laxmi.
 Shri D. G. Vashi.
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 Dr. M. D. Valand.
 Dr. Arjun Vaidya.
 Shri C. K. Vaidya.
 Shri B. S. Vaidya.
 Dr. R. M. Vaidya.
 Shri K. S. Verma.
 Shri K. S. Venkatraman.
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 Shri B. B. Yodh.
 Shri B. K. Zutshi.
 Shri G. D. Zalani.
 Shri Padmakumar B. Zaveri.
 Miss Arunben I. Zaverchand Laxmi-
 chand.
 Miss Naliniben I. Zaveerchand Luxmi-
 chand.
 Shri Harshadkumar I. Zaverchand
 Laxmichand.

ARRANGEMENTS FOR THE FORTY-SECOND SESSION

The Local Reception Committee made all local arrangements necessary for the transaction of the scientific activities of the Session as well as for the accommodation of the members and delegates who attended the Session.

LIST OF DELEGATES (FOREIGN)

Burma

Dr. Ko Ko Lay.
 Dr. Hla Thwin.
 Mr. U. Aung Khin,
 Mr. U. San Tha Aung.
 Mrs. U. San Tha Aung.

China

Mr. Chien Tuan-Sheng.
 Dr. Hou Te-pang.
 Mr. Ti Chao-pai.
 Dr. Wang Hu-Cheng.
 Mr. Hsieh Yu.

Japan

Dr. Juichiro Nakahara.
 Dr. Sin-itiro Tomonaga.
 Dr. T. Watanabe.

International Agencies

Prof. P. V. Auger (UNESCO).
 Dr. W. J. Ellis (UNESCO).
 Dr. F. H. Bathell (WHO).
 Dr. Roger A. Lewis (WHO).
 Dr. F. E. Popper (FAO).
 Dr. P. V. Sukhatme (FAO).

Switzerland

Dr. Hans Boesch.
 Prof. Paul Karrer.

U. K.

Mr. Alfred Maurice Binnie.
 Prof. P. M. S. Blackett.
 Prof. P. A. M. Dirac.
 Prof. W. H. Pearsall.

U. S. A.

Dr. Harrison Brown.
 Prof. Charles D. Campbell.
 Mr. Frederick E. Dobbs.
 Mr. W. Kaempfert.
 Prof. Linus Pauling.

U. S. S. R.

Academician K. V. Ostrovityanov.
 Mr. A. A. Guber.
 Academician D. S. Korjinsky.
 Mr. Y. A. Orlov.
 Mr. B. A. Serebrennikov.
 Mr. Chernigovsky.
 Mr. T. Zahidov.
 Mr. V. Y. Aboltin.
 Miss O. A. Oleinik.
 Mrs. A. G. Masevich.
 Mr. N. N. Rariisky.
 Mr. I. P. Smirnov.
 Mr. P. T. Oraevsky.
 Mrs. A. P. Ostrovityanov.
 Mr. M. I. Rubinshtane.
 Professor I. U. Pisarev.
 Mr. D. D. Degtyar.
 Mr. P. A. Timchenko.
 Mrs. Rubinshtane.

LIST OF DELEGATES (INLAND)

UNIVERSITIES

Agra University, Agra.

1. Dr. V. Puri.
2. Dr. P. N. Wahi.

Aligarh Muslim University, Aligarh.

1. Prof. P. S. Gill.
2. Dr. Putcha Venkateswarlu.
3. Dr. Rais Ahmed.
4. Prof. M. O. Farooq.
5. Dr. A. R. Kidwai.
6. Dr. J. A. Siddiqi.
7. Dr. U. N. Singh.
8. Dr. Waheeduddin Malik.
9. Dr. Intesar Husain.
10. Dr. Abrar Mustafa Khan.
11. Dr. A. Basir Khan.
12. Dr. Nawab Hasan Khan.
13. Mr. Omar Ali Siddiqi.
14. Dr. Anwar Ansari.
15. Dr. P. N. Ganju.
16. Dr. S. M. Tahir Rizvi.
17. Dr. S. M. Ali.
18. Mr. Mohd. Anas.
19. Prof. S. M. Shah.
20. Mr. A. Jamil Qadri.

Allahabad University, Allahabad.

1. Prof. Shri Ranjan.
2. Dr. R. K. Saksena.
3. Dr. A. P. Mehrotra.
4. Dr. Amar Singh.
5. Prof. H. R. Mehra.
6. Dr. Satya Prakash.
7. Dr. R. D. Tewari.
8. Dr. A. K. Dey.
9. Dr. Devendra Sharma.
10. Md. Naseer Khan.

Andhra University, Waltair.

1. Prof. G. Gopala Rao.
2. Prof. Bh. S. V. Raghava Rao.
3. Dr. B. Ramachandra Rao.
4. Dr. B. Sundarama Rao.
5. Dr. V. Ramakrishna Rao.
6. Prof. J. Venkataswarlu.
7. Prof. P. N. Ganapathi.
8. Dr. K. Pampapathi Rao.
9. Prof. C. Mahadevan.

Annamalai University, Annamalaiagar.

1. Dr. V. Baliah.
2. Dr. S. Krishnamurthi.
3. Dr. K. Venketasharalu.

Bihar University, Patna.

1. Dr. J. N. Sahay.
2. Shri S. P. Sinha.
3. Prof. A. T. Moitra.
4. Dr. S. M. Mohsin.

Patna University, Patna.

1. Dr. A. K. P. Sinha.
2. Shri Rameswar Prossad.
3. Dr. A. S. Sinha.
4. Shri Kumar Durganand Sinha.
5. Dr. D. N. Lal.
6. Dr. R. P. Roy.
7. Dr. S. N. Wakhaloo.
8. Dr. H. N. Yadava.
9. Dr. B. P. Gyeani.
10. Dr. R. N. Prossad.
11. Dr. B. L. Thakur.
12. Dr. T. P. Sinha.

Bombay University, Bombay.

1. Dr. G. M. Nabar.
2. Dr. K. S. Rao.

Calcutta University, Calcutta.

1. Dr. J. C. Ghosh.
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3. Prof. S. K. Mitra.

Delhi University, Delhi.

1. Prof. P. K. Kichlu.
2. Dr. B. D. Jain.
3. Prof. P. Maheswari.
4. Dr. M. L. Bhatia.
5. Dr. P. C. Biswas.

Gauhati University, Gauhati.

1. Prof. V. D. Thawani.
2. Prof. H. K. Baruah.
3. Dr. N. Mukerji.
4. Dr. H. P. Das.

Karnatak University, Dharwar.

1. Dr. K. S. Nargund.
2. Dr. N. R. Tawde.
3. Dr. G. K. Mehta.
4. Dr. R. V. Joshi.

Lucknow University, Lucknow.

1. Dr. Raj Narain.
2. Dr. Shyam Narain Mathur.
3. Dr. R. C. Shukla.
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11. Dr. S. M. Das.
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15. Dr. S. C. Ghurye.
16. Dr. M. D. Upadhyaya.
17. Dr. S. P. Chaube.
18. Mrs. Prativa Deo.

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1. Dr. P. S. Sarma.
2. Dr. T. S. Sadasivan.
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5. Dr. G. D. Boaz.
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7. Dr. M. Santhappa.
8. Dr. G. Krishnan.
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5. Shri K. Sripada Rao.
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1. Dr. K. S. Iyengar.
2. Dr. Srinivasan.
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4. Shri Ganesh Pershad Jaiswal.
5. Dr. M. R. Suxena.

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4. Prof. A. N. Kapur.

5. Prof. B. R. Puri.
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9. Principal Mohan Singh.
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14. Dr. Ram Chand.
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2. Dr. Dora Ilse.
3. Dr. M. G. Marathe.
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Travancore University, Trivandrum.

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2. Dr. A. P. Mathew.
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6. Shri K. P. Ramachandran Nair.
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8. Shri K. S. Madhavan Pillai.
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Utkal University, Cuttack.

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*Indian Association for the Cultivation
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15. Shri Bharat Bhusan.
16. Shri T. L. Narasimha Rao.
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19. Shri Devendra K. Rao.

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8. Dr. S. Dutt.
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Indian Institute of Technology, Kharagpore.

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13. Shri V. M. Narhari.
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15. Shri M. K. Molani.

16. Shri H. N. Bose.
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24. Shri I. B. Gulati.
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26. Shri D. K. Nandi.
27. Shri D. Singh.
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31. Shri B. G. Chatterjee.
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33. Shri R. S. Viswanath.
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35. Shri R. Sen Gupta.
36. Shri S. Banerjee.
37. Shri N. K. Roy Choudhury.
38. Shri S. K. Nandi.
39. Shri Parimal Sen.
40. Shri A. N. Roy.
41. Shri D. Venkatarwarlu.
42. Shri Kalyan Kumar Bose.
43. Shri Jajneswar Das.
44. Shri Panchanan Kundu.
45. Shri Viswanath Chatterjee.
46. Shri V. V. Rao Indulkar.
47. Shri A. K. Choudhury.

National Institute of Sciences of India, New Delhi.

1. Dr. K. S. Krishnan.
2. Dr. S. L. Hora.
3. Prof. H. K. Mookerjee.
4. Dr. H. S. Pruthi.
5. Dr. B. Mukerji.
6. Prof. J. M. Sen.
7. Dr. N. R. Tawde.
8. Prof. M. S. Thacker
9. Prof. P. S. Gill.
10. Prof. P. C. Mahalanobis.
11. Dr. U. P. Basu.
12. Prof. S. P. Agharkar.
13. Dr. A. C. Joshi.
14. Dr. B. P. Pal.
15. Prof. S. Rajan.
16. Dr. R. K. Saksena.
17. Dr. D. R. Malhotra.

GOVERNMENT OF INDIA AND STATE GOVERNMENTS

*Director General of Archaeology in
India, New Delhi.*

1. Shri S. S. Rao.

*Delhi Polytechnic, Govt. of India,
Delhi.*

1. Dr. S. M. Das Gupta.
2. Dr. M. H. Desai.

*Dept. of Anthropology, Govt. of India,
Calcutta.*

1. Dr. N. Datta Majumdar.
2. Dr. B. K. Chatterjee.
3. Dr. P. N. Sen Gupta.

*Zoological Survey of India, Govt. of
India, Calcutta.*

1. Dr. B. S. Chauhan.
2. Shri T. D. Soota.
3. Dr. S. L. Hora.

*Ministry of Health, Govt. of India,
New Delhi.*

1. Prof. B. D. Bhatia.

*Planning Commission, Govt. of India,
New Delhi.*

1. Shri V. Kalyanasundaram.
2. Dr. T. S. Gill.
3. Shri Satyapal.

*Ministry of Education, Govt. of India,
New Delhi.*

1. Shri L. S. Chanderkant.
2. Shri Uday Shankar.

*Govt. of Vindya Pradesh, Development
& Social Services, Education Dept.
Rewa.*

1. Dr. S. D. Saxena.

*Education Dept., Govt. of Uttar Pra-
desh, Lucknow.*

1. Dr. D. D. Pant.
2. Dr. K. S. Bhargava.

*Govt. of Rajasthan (Dept. of Commerce
and Industry (Statistics), Jaipur.*

1. Shri Puropit.
2. Shri K. B. Dangayach.

PROGRAMME OF THE SESSION

The 42nd Indian Science Congress was held at Baroda under the auspices of the M. S. University, Baroda, from 4th to 10th January, 1955.

The Session was inaugurated at 11-15 A.M. on Tuesday, the 4th January, 1955 on the University Cricket Ground. More or less five thousand visitors including two thousand delegates attended the Session. About 50 visiting scientists from different countries abroad were present. This provided a special feature of the opening of the Session.

At the outset of the Inaugural ceremony Prof. S. K. Mitra, President of the Session, feelingly referred to the sad and sudden demise of Dr. Shanti Swarup Bhatnagar, Secretary to the Government of India, Ministry of Natural Resources and Scientific Research and Director, Council of Scientific and Industrial Research, a Past General President and an Honorary Member of the Indian Science Congress Association. The audience stood in silence for one minute when business of the ceremony commenced.

Welcoming the scientists and other visitors of the Session Mrs. Hansa Mehta, Vice-Chancellor, M. S. University and Chairman of the Local Reception Committee, made an appeal for the application of science in the service of man so that the destructive potentiality of science could be usefully converted for doing good to people. She then requested the Prime Minister, Shri Jawaharlal Nehru to grace the occasion with his Inaugural speech.

In his short Inaugural address, Shri Jawaharlal Nehru exhorted the scientists to co-ordinate their activities and render all possible help in framing the Second Five-Year Plan for improvement of the condition of people.

Dr. S. K. Mitra then delivered his Presidential Address on "Science and Progress", emphasising the need for the application of modern scientific methods in the industrial sphere with a view to raising the production and making things available at cheaper prices.

After the presidential Address, Prof. P. C. Mahalanobis introduced the guests from abroad to Shri Jawaharlal Nehru, Prime Minister of India and other members, visitors and scientists present at the Inaugural meeting.

Prof. T. K. N. Menon, one of the Local Secretaries, conveyed a vote of thanks to Shri Jawaharlal Nehru, Prime Minister of India, and others present at the function and Dr. B. N. Prasad, General Secretary (Out-station), expressed thanks to all, specially to the local organisers of the Science Congress, on behalf of the Indian Science Congress Association. The ceremony then came to a close with the National Anthem "Jana Gana Mana".

SECTIONAL PRESIDENTIAL ADDRESSES

The Presidential Addresses of the Sections were delivered as follows :—

Wednesday, 5th January, 1955 :—10 A.M. : Mathematics, Botany, Physiology, Psychology & Educational Sciences; 11 A.M. : Statistics, Chemistry, Geology & Geography, Zoology & Entomology, Engineering & Metallurgy; 12 Noon : Physics, Agricultural Sciences, Medical & Veterinary Sciences, Anthropology & Archaeology.

MEETINGS OF THE COMMITTEES

Inauguration of the Indian Science Congress on Tuesday, January 4th, 1955 at 11-15 A.M.; General Committee of I.S.C.A. met on Saturday, January 8th, 1955 at 2-30 P.M.

Meetings of the Sectional Committees on Wednesday, January 5th at 9 A.M., Thursday, January 6th at 9 A.M., Friday, January 7th at 9-30 A.M., Saturday, January 8th at 9 A.M., Sunday, January 9th at 9 A.M., Monday, January 10th at 9 A.M.

The Council met on Monday, January 3rd at 5-30 P.M.; Executive Committee met on Monday, January 3rd at 10-30 A.M. and on Saturday, January 8th at 10 A.M.; Sub-Committee on Science and Its Social Relations met on Wednesday, January 5th at 2-15 P.M.

SOCIAL FUNCTIONS

<i>January 5th :</i>	Local Excursions. At Home. Entertainment.
<i>January 6th :</i>	Local Excursions. At Home. Entertainment.
<i>January 7th :</i>	Local Excursions. Entertainment.
<i>January 9th :</i>	Out-Station Excursions.
<i>January 10th :</i>	Out-Station Excursions.

POPULAR LECTURE

Tuesday, 4th January, 1955 at 7-15 P.M. Popular lecture on "The Human Value of Scientific Progress" by Prof. P. Auger.

Wednesday, 5th January, 1955 at 6-15 P.M. Popular lecture on "Volcanic Eruptions" by Prof. T. Watanabe; at 7-15 P.M. Popular Lecture on "Symmetry in the Atomic World" by Prof. P. A. Dirac.

Thursday, 6th January, 1955 at 7-15 P.M. Popular lecture on "Relation of Science to Democracy" by Mr. W. Kaempffert.

Friday, 7th January, 1955 at 5-45 P.M. Popular lecture on "Scientific Research in New China" by Mr. Chien Taung-Sheng; at 6-15 P.M. Popular lecture on "Abnormal Haemoglobin Molecules in Relation to Disease" by Prof. Linus Pauling; at 7-15 P.M. Popular lecture on "Science and its Social Relations" by Prof. A. R. Wadia.

Saturday, 8th January, 1955 at 6-15 P.M. Popular lecture on "Scientific Foundation of the Planning in the U.S.S.R." by Academician K. V. Ostrovityanov; at 7-15 P.M. Popular lecture on "Study of India in the Soviet Union" by Mr. A. A. Guber.

SPECIAL LECTURES

Physics : "A unified theory of the Electron" by Prof. P. A. M. Dirac; "Extensive showers of Cosmic Rays" by Prof. P. Auger; "Ferromagnetism" by Prof. Linus

Pauling; "Irregularities of the Earth's Rotation" by Prof. Parijsky; "On the Evolution of Stars" by Prof. A. G. Masevich; "Collective Vibration of the Nuclear matter" by Prof. Tomonaga; "Our Atomic Energy Programme and Associated Scientific Problems" by Dr. H. J. Bhabha.

Chemistry: "Synthesis and Stereochemistry of Carotenoids" by Prof. Paul Karrer; "Structure of Proteins" by Prof. Linus Pauling; "Soda Ash Industry" by Dr. T. P. Hou.

Geology & Geography: "Theory of infiltrational Metasomatic Zoning" by Academician D. S. Korjinsky; "Geological Studies of Damages caused by the Atomic Bombs in Hiroshima and Nagasaki" by Prof. T. Watanabe.

Botany: "Botanist as a Producer" by Prof. W. H. Pearsall.

Zoology & Entomology: "The main Directions of the Faunistic Researches in Uzbek, U.S.S.R." by Prof. Zahidov.

Anthropology & Archaeology: "Development of the Languages of the People of U.S.S.R." by Prof. B. A. Serebrennikov.

Medical & Veterinary Sciences: "Chinese Herbal Medicines" by Dr. Hsieh Yu.

Physiology: "The Role of kidneys in the Development of Experimental Hypertension" by Prof. Chernigovsky; "Precision and Quality Instruments" by Prof. I. P. Smirnov.

Engineering and Metallurgy: "Developments in China" by Mr. Wang Hu-Cheng; "Production of Medical Instruments and Equipments in the U.S.S.R." by Mr. I. P. Smirnov.

SYMPOSIA AND JOINT DISCUSSIONS WERE HELD AS FOLLOWS:

Wednesday 5th January, 1955

Subject.	Section.
1. Non-linear Vibrations	Mathematics (jointly with the Section of Physics).
2. Need of Use of X-rays in Somatometric and Anthropometric Investigation	Medical and Veterinary Sciences (jointly with the Section of Anthropology & Archaeology).
3. Minerals in Soils and Clays	Agricultural Sciences (jointly with the Section of Geology & Geography).
4. Applied Ecology	Botany.

Thursday 6th January, 1955

1. Effect of Growth Promoting Substances on Crop Production	Botany.
2. Absolute Summability of Series	Mathematics.
3. Evolution of Continents	Geology & Geography.
4. Mechanism of Gastrulation	Zoology & Entomology.
5. Tribal Welfare and Rehabilitation	Anthropology & Archaeology.
6. History of Medicine	Medical & Veterinary Sciences.
7. Teaching of Agriculture	Agricultural Sciences.
8. Application of X-Rays (New Techniques) in Industry and Medicine	Engineering & Metallurgy.
9. Professional problems of Indian Psychologists	Psychology & Educational Sciences.

Subject.	Section.
10. Problems of Co-ordination of Statistical Activities	Statistics.
11. Nuclear Structure	Physics.
12. Inter-relation of Proteins and Vitamins ...	Physiology.
13. Teaching of Mathematics in Engineering Institutions	Mathematics (jointly with the Sections of Statistics and Engineering & Metallurgy).
14. Plant Breeding Methods in Relation to Physiological and Biochemical Characters ...	Agricultural Sciences (jointly with the Section of Botany).
15. Crime and Society	Psychology & Educational Sciences (jointly with the Sections of Anthropology & Archaeology).

Friday, 7th January, 1955

1. Transformers and their Applications	Mathematics.
2. Synthesis of Steroids	Chemistry.
3. Origin of Saline Deposits in India with special reference to Rajasthan	Geology & Geography.
4. Structural Physiology of Cytoplasm	Zoology & Entomology.
5. Need of Study of Human Heredity in India including Growth Studies	Anthropology & Archaeology.
6. Medical and Veterinary Education and Research	Medical & Veterinary Sciences.
7. Design and Manufacture of Electrical Instruments in India	Engineering & Metallurgy.
8. On some aspects of Science and Its Social Relations	Psychology & Educational Sciences.
9. Molecular Spectra and Molecular Structure ...	Physics.
10. Physiological Norms in Indian Cattle ...	Medical & Veterinary Sciences. (jointly with the Section of Physiology).
11. Statistical Methods in Genetics and Plant and Animal Breeding	Statistics (jointly with the Sections of Botany and Agricultural Sciences).
12. Plant Introduction as an aid to Improvement of Food and Fodder Plant	Agriculture (jointly with the Section of Botany).
13. Modern trends in Analytical Chemistry ...	Chemistry.

Saturday, 8th January, 1955

1. Need of Detailed investigations relating to Pre-history and Fossilmen in India	Anthropology & Archaeology.
2. Teaching of Physiology in India	Physiology.
3. Encroachment of Lands of High P.P.U. ...	Psychology & Educational Sciences.
4. Natural Regions of India	Geology & Geography.
5. Textile Chemistry	Chemistry.

Sunday, 9th January, 1955**Subject.****Section.**

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| 1. Organic remains in the Vindhya and their Age | Geology & Geography. |
| 2. Blood Grouping in relation to Castes in India ... | Anthropology & Archaeology. |
| 3. Demographic Problems | Statistics (jointly with the
Sections of Anthropology &
Archaeology and Medical
& Veterinary Sciences). |

OPENING PROCEEDINGS

Welcome Address by Shrimati Hansa Mehta, Vice-Chancellor, The Maharaja Sayajirao University of Baroda and Chairman, Reception Committee.

Mr. Prime Minister, Mr. President, Distinguished visitors, Delegates to the Indian Science Congress, Ladies and Gentlemen.

On behalf of the Reception Committee and the Maharaja Sayajirao University, I have great pleasure in welcoming you all to Baroda. This is the second time that the Indian Science Congress has honoured Baroda by holding its annual Session here. The 29th Session of the Indian Science Congress was held here in 1942 under the presidentship of the well known Geologist Dr. D. N. Wadia. I cannot resist the temptation of quoting the opening words of Dr. Wadia from his presidential address, as they speak more eloquently about what Baroda has done for science than what I can say. He said, "The 29th Session of the Indian Science Congress meets today at a centre which possesses a distinguished record as one of the pioneers of Science education in India. As far back as 1882, the Baroda College was launched on its beneficent career of providing higher education to the people of north Bombay Presidency. Very soon it emerged with well-equipped departments of Physics, Biology and Agriculture, which included fully appointed laboratories, a botanical garden, an experimental farm and later a Science Museum. The vision and munificence of that Prince of many pioneering institutions, Maharaja Sayajirao Gaekwad, endowed Baroda with institution for the teaching of Science on a scale of liberality equalled at the date by few centres in India."

Since 1942 the country has undergone an epoch making change and so has Baroda. The princely State of Baroda has ceased to exist as a separate State. It has merged into the State of Bombay under the **मत्स्य न्याय**—Law of the fishes, *i.e.* the larger fish swallowing the smaller. But while the state has merged, the City of Baroda as an important educational centre has come into prominence. A University has been established since 1949 and bears the name of the illustrious ruler to whom Dr. Wadia referred. It is not only the name, but even the spirit of that pioneering prince has devolved on the University. The University has already struck new paths and broken new ground in many directions, *i.e.* in the methods of teaching, in the system of examination etc. Besides the traditional Faculties, *viz.* Arts, Science, Commerce, Engineering and Medicine, the University has Faculties in Fine Arts including Music, Social Work and Home Science. The technical Institute known as Kala Bhavan and founded in 1890 is now a full fledged Faculty of Technology which offers degree courses in Engineering as well as courses in Technology. Courses, in Textile Engineering, a subject which is not recognised

so far for purpose of teaching in any other University in the country, are also introduced. A separate department of Psychology has come into existence under the Faculty of Education and Psychology. Post-Graduate courses in Museology under the Fine Arts Faculty are organised with the help of the Baroda Museum. These courses are also the first of their kind in the country. In the Medical Faculty a department in Ayurveda Research is being organised. The value of some of the Ayurvedic drugs is already known to the world of Science. The Sarpagandha or Sarpina, a very effective drug has been made known to the west by the publicity given to it by Mr. Kaempffert, the winner of the Kalinga prize. I am sure there are many more such drugs which wait to be discovered. These are some of the ventures this infant University has undertaken. I hope it will be possible for some of you to visit these various departments in the University.

Of late Science has come in for a great deal of criticism. While appreciating what science has done for humanity within the last hundred years one cannot but view with alarm the use to which science has been put during the last few decades. It evokes a pertinent question as to whither science. With the advance of science the material prosperity of the world has no doubt increased. It has, however, brought in its wake a deterioration in human values. Today it is the machine that is considered important, not the man. Millions are spent in trying to make the machine better and better but comparatively very little to improve the man. This is reflected even in our educational policy. We give more importance to Science and Technology than to Humanities. This devaluation of man has in its turn resulted in the abuse of Science. For Science has become a powerful instrument in the hands of the ambitious for the domination of man. The world has already witnessed two conflagrations where Science has played such an important part. Perhaps one cannot blame Science for what has happened. Scriptures are not bad because the devil quotes them. Nor can one stem the tide of scientific progress ; and such an attempt should not be made. Scientists have to persist in their quest for more and more knowledge. But the Scientists must realise that they have a moral duty towards humanity. Unless they realise this and understand their responsibility there is no hope for the world. Scientific secrets must not be imported indiscriminately. Such secrets in the hands of the Hitlers of the world, will endanger the safety of mankind. It would be like giving a ladder to a monkey as a Gujarati Proverb says which means creating more mischief. The practice in ancient India for teachers or Gurus was to impart knowledge only to persons worthy of receiving it. The great sage Vishwamitra who possessed the secret of many deadly weapons, gave that secret to Rama only and to no one, knowing that Rama would never use it for an evil purpose. In the present times, however, when scientists are servants of the state, I suppose they have no choice but to comply with their masters' wishes. In the circumstances those to be held responsible for the abuse of Science are the Govern-

ments of the States. If that is so the only way to prevent this abuse is to place scientific discoveries of such destructive nature under an international authority.

Unless this is done, the race between the big powers to produce more and more nuclear weapons with the aid of science will continue. If the object to invent these weapons of destruction is to frighten others into not fighting thus end war and establish peace, as has been said, such a procedure to establish peace, is as dangerous as the deadly weapons. It creates an atmosphere of fear and as the poet Valmiki says—भयं भीतादि जाय—danger is to be feared from those who are frightened. For fear leads to suspicion ; suspicion to misunderstanding ; and misunderstanding to what not. If peace is really to be established, it is the fear that must be removed from the minds of men. What the world urgently needs today to resolve world tension is an assurance that science will not help in the production of nuclear weapons. If the atom has to be broken let it be broken for the uplift of man and not for his destruction.

I do not know what the scientists can do about this. Let not “the meddling intellect misshape the beautiful forms of things” is all that a layman can ask of the scientists of the world.

I once more welcome you all, the delegates and the distinguished scientists who have come from across the seas and from across the mountains. We are also happy that the Prime Minister is in our midst. He is always welcome wherever he goes. We have tried our best to make your stay comfortable. The Indian Science Congress is growing larger and larger every year. To accommodate hundreds of visitors is always a major problem for the reception committee. But for the help of H. H. the Chancellor, the citizens of Baroda and the help the Government of Bombay has promised, it would not have been possible to give you even this much hospitality. On behalf of the reception committee I express my gratitude to them all and to each one of those who have worked towards the success of this session.

**INAUGURAL ADDRESS OF SHRI JAWAHARLAL NEHRU, PRIME MINISTER
OF INDIA, AT THE 42ND SESSION OF THE INDIAN SCIENCE CONGRESS
AT BARODA**

Inaugurating the 42nd Session of the Indian Science Congress Shri Jawaharlal Nehru, Prime Minister of India, paid a glowing tribute to the memory of the late Dr. S. S. Bhatnagar. He observed : “I have always associated with many prominent figures closely connected with the Science Congress and among them the chief was Dr. Bhatnagar. It is not necessary to say anything formal about him. You all knew him. But I would like to pay a tribute to Dr. Bhatnagar with whom I had co-operated for the last six, seven years or more and, who, I think, has done, I say this will all respect due to others, more than any one else for the scientific development in India. We have eminent scientists in this country and people eminent in other ways ; Dr. Bhatnagar was a special combination of

many things added to which was a tremendous energy, with an enthusiasm to achieve things. The result was he has left a record of achievement which is truly remarkable. I can truly say that but for Dr. Bhatnagar, you could not have seen to-day the chain of National Laboratories in India.

"It is sad that he should have passed away suddenly in this way. There are many things which he discussed with me and which we hoped to put through soon. We want many more scientists if we are to go ahead and solve our problems".

Coming to the subject of his address Shri Nehru appealed to scientists, engineers and technicians all over the country to take an intimate interest in formulating the National Plan for improvement of the conditions of people. Unless they did that, they would not be doing their function completely nor would the country be utilising their services as well as it should, he remarked.

Continuing he added: "In the work of the formulation of plans and in the matter of implementing them the co-operation of scientists and technical people in the country is more important than the co-operation of anyone else. Some eminent foreign people have told me that while Indian scientists are doing excellent work and the National Laboratories have a great and fine staff there is an element of "ivory tower" attitude among scientists. I do not think the criticism is correct. Still it is a fact that scientific research work and its practical application have not been properly co-ordinated with the big plans of development.

"As it is the duty of the Government and the Planning Commission to pay attention to this problem so also it is the duty of the scientists to co-operate with the authorities in every possible way. Only in that way can spring the necessary co-ordination between scientists, Government and the Planning Commission".

"Planning in India is a tremendous task. We are planning in a big way. The plan has to do with the improvement in the standard of living of 360 million people and removal of the unemployment. The Planning Commission is endeavouring its utmost to do it. But, our scientists and technicians wherever they may be should take an intimate interest in the planning work. Unless they do that they are not doing their function completely nor are we utilising them as well as we should".

Appealing to the administrative officials to shed the old attitude of looking upon scientists and engineers as merely experts who could be summoned to advise, and thinking of themselves as the repository of every kind of wisdom and capable of taking up any job and doing it, Shri Nehru said: "I know the administrative services have changed greatly and are doing good work, and it is the general conception of what your objective is and where you are going, that must change.

"In the days of British Government the administrative officials were merely to carry on and remain where they were. It was a static conception.

"Obviously, at present we can not merely carry on. We have to move fast and in fact we have toned up to a great extent. For this

reason our conception should change and we should recognise that the engineers and scientists are far more important than the administrators in so far as the progress of the nation is concerned."

Shri Nehru advised the scientists that in their endeavour to create an atmosphere of free enquiry which was so necessary for scientific development and to ensure that their activities and researches led to the good of the country and mankind generally, they should not just bow down to Governmental or nationalistic pressures. Simultaneously he reminded the scientists that his own definition of good and evil was likely to be limited and might not fully signify what was meant.

He stated : "We must have some form of co-existence. With the development of nuclear weapons and the rest, it is clear that the only alternative to co-existence is co-destruction.

"I mention these things to you because they concern more and more the scientists. Sometimes, scientists have to shoulder terrific responsibilities, because it is due to their labour that some big development, either for the good or evil of the world, may take place. But it is not a problem at present in India. We are not playing with atomic bombs at present. But it is the life problem of the world. I do not offer any solution of the problem. Each person will have to think it out. You have somehow to bring about an atmosphere of free enquiry which is so necessary for scientific development. To-day scientific development is getting less and less free under nationalistic and Governmental pressures.

"So, we have to face this problem. I hope that your service and your working shall be free from any such pressures from Government or from any other source".

Prime Minister Nehru described the present age as "the age of advertisement" and appealed to scientists and all educationists to avoid advertising their own worth.

They should not shout their virtues and demand recognition. He did not know if this was a pertinent suggestion in a world which to-day was so used to shouting about itself and "mount on somebodys shoulders and dance in the world".

Towards the close of his speech Shri Nehru remarked : "The older I become the more humble I am becoming in my approach to truth. My mind is always struggling and having its own inner battles while I ponder over things. One should not imagine that the truth he seeks is the whole truth. I myself, am not bound by any dogmas and am always prepared to admit my mistakes and rectify them. I believe that such an approach is nearer to what may be called the scientific approach and in that sense I consider myself as having a scientific temperament, although I can not claim to be a scientist".

Shri Nehru said he saw in this world to-day that many of the great qualities he believed in, were vanishing. "People are getting rougher, coarser, more belligerent to each other. But, I hope India will progress and yet preserve those qualities she has always valued".

GOODWILL MESSAGES

MESSAGE FROM THE BRITISH ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

As you know, two of the British delegates, A. M. Binnie and W. H. Pearsell, have been sent by the British Association for the Advancement of Science to represent that Association at the meetings of the Indian Science Congress at Baroda.

The President and Council of the British Association wished us convey to the Indian Science Congress, their good wishes for the success of the meetings now being held at Baroda, their greetings to Indian Scientists in general and their congratulations on the important efforts now being made to develop Indian Scientific resources.

MESSAGE FROM THE SCIENTIFIC DELEGATION FROM THE U.S.S.R.

Mr. President, dear colleagues, Ladies and Gentlemen,

On behalf of the Soviet scientists I am glad to welcome this opportunity of greeting the participants to the 42nd Session of the Indian Science Congress.

I would also like to thank the Reception Committee for the sincere and very cordial welcome accorded to the Soviet Delegation.

The Soviet Delegation has noted with great satisfaction that the work of the Congress is marked with the spirit of creative co-operation among the experts in the various branches of science and of the ever-increasing role modern science is playing in the practice of peaceful economic and cultural construction.

For the scientists there is no greater happiness than to see that the fruits of his creative efforts serve not death and destruction but contribute to the development of economy and technique facilitating the labour of millions of ordinary people. These creators of all the material wealth are responsible for the prosperity and cultural progress of the masses.

We record our high admiration for the excellent work being done by the Indian Science Congress in stimulating the application of Scientific methods for a rapid industrialization of the country. This is the very task which the Prime Minister of India, Mr. Nehru characterized as one of the greatest tasks facing the country and the Indian People, which is following its own, independent course of development. With all our heart we wish the Indian Scientists every success in their present endeavours.

The Soviet delegation is confident that the present Congress will mark a significant step forward in the cause of further consolidation and development of creative co-operation between the Indian scientists and the scientists of the Soviet Union as well as those of the rest of the world, in the interests of progress, peaceful development and peoples' welfare.

**MESSAGE FROM THE SCIENTIFIC DELEGATION OF THE PEOPLE'S
REPUBLIC OF CHINA**

Dear Mr. Chairman, Ladies and Gentlemen,

It is a great pleasure and honour for the Chinese Delegation to be present at the 42nd annual session of the Indian Science Congress. Allow me, on behalf of the Chinese scientific workers and the Academia Sinica, to extend to you our heartiest greetings.

There has been a long-continued friendship between the peoples of China and India, and the history of our scientific and cultural interflow and co-operation is more than one thousand years old. Since the founding of the People's Republic of China in 1949, the friendship and cooperation between our two peoples has further been greatly developed and strengthened.

Science is to serve the people. Only in a peaceful environment can science normally grow and its fruits be used for the uplift of the standard of living, both material and cultural, of the people. Scientific workers of China and India, just as the righteous and progressive scientists of the whole world, deeply love science, truth and peace. We are confident that all the efforts made by scientists of our two countries for the maintenance of world peace and the development of science would be highly appreciated and fully supported by peoples of our two countries and of the whole world.

We are confident that this annual Congress will have a great influence on the development of science in India, and will contribute to world peace and the advancement of science in general. On behalf of Chinese scientists and the Academia Sinica I wish successes for the Congress, rapid growth of science in India, and further development and consolidation of the friendship and co-operation between China and India.

ANNUAL REPORT OF THE EXECUTIVE COMMITTEE OF THE INDIAN SCIENCE CONGRESS ASSOCIATION, 1954

ANNUAL SESSION

INTRODUCTION

During the year under review an admission fee was introduced for new Members and the Sessional Membership subscription rates were increased. Despite these enhancements there has been an increase in the number of Members. This shows that the Science Congress is continuing to gain in popularity among scientists and persons interested in the promotion of science.

A Brochure giving advance information about the Session was brought out for the first time this year and circulated to Members providing them time to get themselves better equipped and prepared for discussions to be held at the Session. Invitations from the Government of India and from various scientific organisations abroad were received as usual.

We also note with great satisfaction that during the year in question our Prime Minister, Shri Jawaharlal Nehru, who always places science in the forefront of all national development, was elected as one of the Honorary Members of the Association.

41ST SESSION

The 41st Session of the Indian Science Congress Association was held at Hyderabad from 2nd to 8th January, 1954, under the auspices of the Osmania University and was presided over by Dr. Sunderlal Hora, Director, Zoological Survey of India, Calcutta. Shri Jawaharlal Nehru, Prime Minister of India, Shri B. Ramakrishna Rao, Chief Minister, Government of Hyderabad and Dr. S. Bhagabantam, Vice-Chancellor, Osmania University, were among the distinguished guests who addressed the opening Session attended by over five thousand scientists, including about 32 from foreign countries all over the world. The President, Dr. Sunder Lal Hora, after delivering the Presidential Address on "Give scientists a chance", announced that the Council of the Indian Science Congress Association had admitted Shri Jawaharlal Nehru, Prime Minister of India and Dr. S. S. Bhatnagar, Secretary to the Government of India, Ministry of Natural Resources and Scientific Research, New Delhi, and Director, Council of Scientific and Industrial Research, as Honorary Members.

Among the distinguished scientists from abroad were :—

1. Prof. Alan Mara Bateman, U.S.A.
2. Prof. F. C. Bawden, U.K.
3. Prof. E. B. Chain, Italy.
4. Prof. J. Huxley, U.K.
5. Prof. F. J. M. Stratton—Representative of the British Association for the Advancement of Science.

6. Prof. Norbert Wiener, U.S.A.

Obituaries :—With deep regret we have to announce the death of the following persons who had long been associated with the Indian Science Congress Association and who, by their services, had helped in the promotion and advancement of the cause of Science :—

1. Prof. S. L. Ajrekar (Past Recorder, Section of Botany).
2. Dr. K. N. Bahl (Past President, Section of Zoology).
3. Dr. D. N. Banerjee.
4. Dr. C. C. Basu.
5. Prof. P. Dey (Past President, Section of Physiology).
6. Sir Lewis Leigh Fermor (Past General President).

GENERAL COMMITTEE MEETING

The General Committee met on the 5th and 6th January, 1954, under the Chairmanship of Dr. S. L. Hora and considered amongst other matters the announcement of the General Presidents for the years 1955 and 1956. The invitation of the M. S. University, Baroda to hold the 42nd Session was accepted. At the meeting held on the 6th January, 1954, the subscription rates of Membership were revised as under :—

Admission fee for new Members	...	...	Rs. 5/-
Membership subscription	...	...	„ 12/-
Sessional Membership subscription	...	...	„ 15/-
Student Membership subscription	...	...	„ 5/-

COUNCIL MEETING

The Council met on the 2nd January, 1954, under the Chairmanship of Dr. S. L. Hora, and decided that a skeleton Annual Report should be placed before the 2nd Statutory Meeting of the Executive Committee for information.

COMMITTEES AND COMMITTEE MEETINGS

The Executive Committee met ten times (including three Statutory Meetings) since the last Hyderabad session. At one of these meetings held on the 8th May, 1954, it was decided that Life Membership fees should be earmarked from the Reserve Fund to the Building Fund Account. At another meeting held on the 12th August, 1954, it was decided that to obviate difficulties experienced in the past, no invitation should be sent to foreign scientists after the 30th September, each year.

2. *Standing Committee for visiting scientists*.—The Standing Committee met twice during the year, on 2nd January, 1954 and 10th March, 1954, with Shri Jawaharlal Nehru as Chairman. This Committee was

re-constituted at the Statutory Meeting of the Executive Committee held on the 8th May, 1954, as follows:—

1. Shri Jawaharlal Nehru—Chairman.
2. Dr. S. S. Bhatnagar.
3. Dr. J. C. Ghosh.
4. Dr. M. S. Krishnan—President-Elect.
5. Prof. S. K. Mitra—President.
6. Prof. P. C. Mahalanobis—Convener.
7. Dr. U. P. Basu—General Secretary.

3. *International Relations Committee*.—The International Relations Committee met once on the 12th July, 1954, and was constituted as follows:—

1. Prof. S. K. Mitra—President of the Year—Chairman.
2. Dr. S. S. Bhatnagar—Representative of the Ministry of Natural Resources and Scientific Research.
3. Dr. S. L. Hora—Past President—Member.
4. Dr. M. S. Krishnan—President-Elect—Member.
5. Prof. P. C. Mahalanobis—Treasurer—Member.
6. Dr. B. N. Prasad—General Secretary (Outstation)—Member.
7. Shri S. N. Sinha—Member of the Executive Committee—Member.
8. Dr. U. P. Basu—General Secretary (Headquarters)—Convener.

4. *Publication Committee*.—The Publication Committee consisting of the Sectional Presidents, Sectional Recorders and Members of the Sectional Committees of the year residing at Headquarters station, met once on the 18th June, 1954, and the question of the publication of abstracts of papers on symposia to be held at the Session was discussed. The Committee was constituted as follows:—

1. Prof. S. K. Banerjee—Senior Past President, Section of Physics.
2. Prof. S. K. Basu—President, Section of Medical and Veterinary Sciences.
3. Shri B. B. Bhowmick—President, Section of Engineering and Metallurgy.
4. Shri M. C. Chaki—Member, Section of Mathematics.
5. Dr. B. K. Chatterjee—President, Section of Anthropology and Archaeology.
6. Dr. N. N. Das—President, Section of Physiology.
7. Dr. T. N. Ghosh—Recorder, Section of Chemistry.
8. Prof. S. C. Mitra—Senior Past President, Section of Psychology and Educational Sciences.
9. Dr. M. K. Mukherjee—Member, Section of Agricultural Sciences.
10. Shri H. K. Nandi—Recorder, Section of Statistics.
11. Dr. P. Sen—President, Section of Zoology and Entomology.
12. Dr. J. C. Sen Gupta—President, Section of Botany.
13. Shri V. P. Sondhi—President, Section of Geology and Geography.

5. *Finance Committee*.—The Finance Committee with Dr. K. N. Bagchi as co-opted member met once on the 4th May, 1954 and considered different aspects affecting the financial position of the Association.

6. *Rules Revision Committee.*—The Rules Revision Committee met once on the 23rd March, 1954, and finally approved the revised Rules as passed at the last Annual General Meeting for publication in the Proceedings.

7. *Building Sub-Committee.*—The Building Sub-Committee met thrice in the year, on 26th February, 1954, 17th March, 1954, and 12th July, 1954, to consider the plan and discuss ways and means to raise funds for the construction of a building for the Association on the land at 64, Dilkhusa Street, Calcutta, donated by the Corporation of Calcutta. It was decided at the meeting held on the 12th July, 1954, that a special endeavour should be made to enlist as many Benefactors as possible.

INTER-RELATION WITH SCIENTISTS AND SCIENTIFIC SOCIETIES IN INDIA AND ABROAD

(A) INVITATION TO SCIENTISTS FROM ABROAD

The Standing Committee at its meeting held on the 2nd January, 1954, recommended names of eight foreign scientists with some alternates for invitation on the basis of the suggestions received from Members of the Council and the Executive Committee. Invitations were extended jointly by the Government of India and the Indian Science Congress Association, and the following scientists have finally accepted our invitation to attend the Session at Baroda :—

1. Dr. D. W. Bronk, U.S.A.
2. Prof. J. H. Burn, U.K.
3. Prof. P. A. M. Dirac, U.K.
4. Prof. P. Karrer, Switzerland.
5. Prof. T. Watanabe, Japan.
6. Prof. Linus Pauling, U.S.A.

Besides the above, the Kalinga Prize winner for 1954, Mr. W. Kaemffert and some other scientists from abroad who happen to be in India are expected to attend the Session. Delegations from China, Japan and Russia are also expected.

The Ministry of Natural Resources and Scientific Research, Government of India, has very kindly provided this year a grant of Rs. 55,000/- (inclusive of the cost of passage of our delegate to the last meeting of the British Association for the Advancement of Science) for this wholesome scheme for exchange of scientific thoughts and ideas between Indian and overseas scientists.

During the Session in 1954 a significant number of scientists from U.S.A., U.K., U.S.S.R., Switzerland, Italy, Indonesia, China, Japan, Burma and Pakistan took part in the deliberations. Many of them stayed on after the Session, and undertook travels to different research centres and Universities, of which mention may be made of the following :—

Indian Institute of Science, Bangalore.
 Jute Agricultural Research Institute, Barrackpore.
 Tata Institute of Fundamental Research, Bombay.
 Dept. of Chemical Engineering, University of Bombay, Bombay.
 Haffkine Institute, Bombay.
 Indian Statistical Institute, Calcutta.
 Indian Jute Mills Association Laboratory, Calcutta.
 School of Tropical Medicine, Calcutta.
 All India Institute of Hygiene and Public Health, Calcutta.

A Committee consisting of—

1. Prof. S. K. Mitra—President.
2. Shri N. Adhikari.
3. Dr. S. L. Hora.
4. Prof. P. C. Mahalanobis—Convener.
5. Dr. B. N. Prasad—General Secretary (Outstation).
6. Dr. U. P. Basu—General Secretary (Headquarters).

was formed at the Executive Committee meeting held on the 22nd September, 1954, to formulate the future policy in regard to inviting scientists from abroad with a view to deriving the greatest benefit out of their visit.

(B) PAN INDIAN OCEAN SCIENCE ASSOCIATION

In consultation with this Association, the Government of India sent a delegation of 8 scientists with Dr. H. J. Bhabha as leader to the 2nd Session of the Pan Indian Ocean Science Association held at Perth (Australia) in August last. The delegation consisted of either the Conveners of various National Committees, such as Biological Sciences (Dr. Sunder Lal Hora), Agricultural Sciences (Dr. J. N. Mukherjee) and Geography and Oceanography (Dr. N. K. Panikkar); Members of National Committees, such as Geological Sciences (Dr. P. K. Ghosh) and Geography and Oceanography (Dr. B. L. Gulatee) or of others from outside these committees, namely Dr. L. A. Ramdas (Physical Sciences) and Dr. F. H. Bharucha (Biological Sciences). Dr. J. N. Mukherjee represented India in the discussions on Human Ecology also.

Besides Australia and India, other countries represented at the Congress were Burma, Ceylon, France, Madagascar, Malaya, Netherlands, Pakistan and Portugal.

Prof. A. P. Elkins, Chairman of the Australian National Research Council, presided at the Congress Session and will be the President of PIOSA till it meets in Madagascar in 1957.

In conformity with the object of the Association, the discussions were so arranged as to promote concerted action in regard to scientific problems, specially affecting the well-being of the peoples and the progress of the countries around the Indian Ocean.

(C) INDIAN COUNCIL OF MEDICAL RESEARCH

Dr. U. P. Basu, Director, Bengal Immunity Research Institute, Calcutta, has been appointed as representative of the Indian Science Congress Association to serve on the Governing Body of the Indian Council of Medical Research for three years from 10th March, 1955.

(D) NATIONAL INSTITUTE OF SCIENCES OF INDIA

According to the constitution of the National Institute of Sciences of India the General President, Prof. S. K. Mitra and the General Secretary (Headquarters), Dr. U. P. Basu have been appointed as representatives of the Indian Science Congress Association to serve on the Council of the National Institute of Sciences of India as an additional Vice-President and additional Member respectively during the year 1955.

(E) CEYLON ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

It was not possible to send a delegation to the last Annual Session of the Ceylon Association for the Advancement of Science held in Colombo in November last ; but a goodwill message wishing the Association continued success was conveyed to them.

(F) AUSTRALIAN AND NEW ZEALAND ASSOCIATION FOR THE ADVANCEMENT OF SCIENCE

Shri P. Ratnam and Dr. Evani Kondiah represented the Indian Science Congress Association as delegates to the Australian and New Zealand Association for the Advancement of Science.

(G) ITALIAN SCIENCE ASSOCIATION (ROME)

The Italian Science Association invited the Science Congress to send a representative at their last Session held at Rome from 16th to 20th October, 1954. The invitation was, however, received rather late in the third week of September and it was not possible to arrange for a delegate to attend the Session.

(H) BRITISH ASSOCIATION

Prof. S. K. Mitra, General President, represented the Indian Science Congress Association at the last meeting of the British Association for the advancement of Science held at Oxford in the first week of September last.

(I) PAKISTAN SCIENCE ASSOCIATION

Prof. P. Maheshwari and Dr. D. S. Kothari, have been nominated to represent the Indian Science Congress Association at the next meeting of the Pakistan Association for the Advancement of Science to be held at Hyderabad (Sind) from 17th to 22nd January, 1955.

(J) UNESCO

The General Secretary (Headquarters), Dr. U. P. Basu has continued to act as the Liaison Officer of the International Relations and Correspondent on behalf of the Association with UNESCO.

(K) ALL INDIA CONFERENCE OF NATIONAL NON-GOVERNMENTAL ORGANISATIONS

Dr. C. S. Patel, Dr. A. S. Kalapesi and Shri B. B. Joshi represented the Indian Science Congress Association as delegates to the All India Conference of National Non-Governmental Organisations held in Bombay from 10th to 12th May, 1954, and Dr. M. S. Patel and Dr. N. R. Tawde, represented this Association as observers.

(L) WORLD FEDERATION OF NATIONAL ASSOCIATIONS

A Committee consisting of—

1. Prof. S. K. Mitra
2. Dr. D. M. Bose
3. Dr. S. L. Hora

was formed to go into details of the proposal for establishment of the World Federation of National Associations. The Government of India has agreed to the principle of such an International Organisation, and it has been decided that the Indian Science Congress Association should join the Federation as a constituent member without any financial obligation whatsoever.

(M) INTER-LINKING OF SOCIETIES

Many scientific societies in India have expressed their desire in favour of inter-linking with this Association. Different aspects of the proposal of inter-linking are being studied in detail and a report on the same will be presented in due course.

THE COMMITTEE ON SCIENCE AND ITS SOCIAL RELATIONS

The Annual meeting of the Committee was held on the 3rd January, 1954, under the Chairmanship of the President, Dr. S. L. Hora. Dr. A. C. Ukil presented a paper on "Science and Society" and a lively discussion followed in which Prof. D. D. Kanga, Dr. B. Mukerji, Dr. U. P. Basu, Dr. N. S. N. Sastry and several other members took part. Dr. B. Mukerji suggested that a forum on Science and its Social Relations should be held at least once a year at places outside Calcutta, and this was accepted. This year the forum has been arranged to be held at Baroda. Prof. J. M. Sen, the Convener of the Committee, is to be thanked for its growing importance.

MEMBERSHIP OF THE ASSOCIATION

It is a matter of great satisfaction to all concerned that the popularity of Science Congress is growing with years. Even the increase in Membership subscription rates introduced during the year did not dissuade intending members from joining the Science Congress Association. As a matter of fact the Membership has increased and the number of Members to-day is the record so far reached in the history of the Science Congress. The following table will indicate the position of Members during the last four years :—

Class of Members.	39th Session	40th Session	41st Session	42nd Session
Life Member ...	62	73	85	92
Member ...	1,613	1,650	1,723	1,981

OFFICE BEARERS

In accordance with the Rules, the President, Prof. S. K. Mitra took over the charge of the office on the 1st February, 1954.

Dr. U. P. Basu, who was nominated as General Secretary (Headquarters) with effect from the 11th February, 1953, vice Dr. S. R. Sen Gupta, resigned due to pressure of official work, was elected as the General Secretary (Headquarters) for a term of three years.

FINANCIAL POSITION

The generosity of the Ministry of Natural Resources and Scientific Research, Government of India, has helped the Association in tiding over the financial difficulties, and inviting foreign scientists from abroad offering them hospitality as the occasion demanded. Since 1953-54 the Government have increased the recurring grant from Rs. 15,000/- to Rs. 22,000/-. Still there is some anticipated deficit partly due to giving effect to some of the recommendations made by the Office Reorganisation Committee in April, 1952, for increase of staff, which were approved by the Executive Committee and the Council and reported to the General Committee meeting at Lucknow in 1953. The necessity of making provision for the Building Fund and some welfare schemes for the salaried staff, such as Gratuity and Provident Fund, is also partly responsible for the deficit.

The position regarding Receipts and Expenditure, so far as the General Fund of the Association is concerned, will be evident from the table below:—

	Receipts		Expenditure		Deficit		Surplus	
	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.	Rs.	A. P.
1st April, 1952 to								
31st March, 1953 ...	66,307-1-0		68,322-3-0		2,015-2-0		...	
1st April, 1953 to								
31st March, 1954 ...	62,146-7-3		53,230-9-3		...		8,915-14-0*	
1st April, 1954 to								
31st March, 1955 ...	61,850-0-0		70,285-0-0		8,435-0-0		...	
(Anticipated)								

BUILDING FUND

A sum of Rs. 23,086-5-9 including the allocation of Rs. 3,599-6-0 from the income for 1953-54, stands at the credit of the Building Fund. Arrangements for the construction of the building on the plot of land donated by the Corporation of Calcutta are in progress.

The Corporation of Calcutta made over the land for the construction of the Congress building at 64, Dilkhusa Street, Calcutta to the Indian Science Congress Association at a ceremony held on Saturday, the 20th February, 1954.

The Association has been endeavouring its utmost to secure funds for the construction of the building. At the Statutory Meeting of the Executive Committee held on the 8th May, 1954, it was decided that special efforts should be made to enlist larger number of Life Members and that the Life Membership fees so collected should be credited to

* The surplus of Rs. 8,915-14-0, as shown against the year 1953-54 is due to the fact that some bills which were due for payment before the close of the financial year, were received after the accounts for the year were audited, and as such were not taken into account.

the Building Fund Reserve. The following donations were promised to the Fund at the meeting:—

Prof. S. K. Mitra, President	Rs. 500/-	(including the Life Membership fee due from him. Amount since paid).
Shri B. K. Sarkar, Treasurer	Rs. 5,000/-	
Dr. J. N. Basu	... Rs. 200/-	
Shri K. L. De	... Rs. 100/-	
Shri B. B. Joshi	... Rs. 500/-	
Dr. U. P. Basu	... Rs. 100/-	
Dr. B. C. Guha	... Rs. 200/-	(including the Life Membership fee due from him).
Dr. B. Mukerji	... Rs. 150/-	
Shri S. N. Sinha	... Rs. 100/-	
Dr. S. L. Hora	... Rs. 101/-	
Dr. B. N. Prasad		Agreed to become a Life Member.

OFFICIATING ARRANGEMENTS

Shri B. K. Sarkar, a Member of the Executive Committee, acted as the Treasurer of the Association during the absence from India of Prof. P. C. Mahalanobis. The Committee records its sincere thanks to Shri Sarkar.

REORGANISATION OF OFFICE

As stated in the Annual Report for 1953, the General Secretary (Headquarters) felt that a whole time Assistant Secretary, a Stenographer and an Accountant-cum-Cashier were essential for the efficient conduct of work in office. Besides, the work of the Association is increasing rapidly, as would be evident from the fact that the number of Members has increased to 2,073 as against 1,808 in the previous year. The responsibility of arranging the tour programme of visiting scientists is also being devolved on the Association. Of the above staff, an Assistant Secretary could only be appointed on probation from the middle of the year under review. The other two appointments will be made as soon as funds permit.

BUDGET

The audited Statement of accounts for the year 1953-54 as also the budget estimates for the year 1954-55 are given in the Appendix.

ACKNOWLEDGMENT

The Committee records its indebtedness to the Ministry of Natural Resources and Scientific Research, Government of India, specially to the Secretary of the Ministry, Dr. S. S. Bhatnagar and his staff, for the ungrudging help rendered to the Association in all fields of its activities.

The Committee is also grateful to Shri T. Gonsalves, Deputy Secretary to the Government of India, Ministry of Natural Resources and Scientific Research, who extended the fullest co-operation in organising programmes and making travel arrangements for the visiting scientists in India.

The Committee records with thankfulness the untiring efforts of Shri B. K. Sarkar for the preliminary arrangements in connection with starting the construction of the proposed Science Congress building.

The Committee is grateful to Shri P. Guha, City Architect, Corporation of Calcutta, for the useful services rendered by him, free of cost, in drawing the plan of the building, getting it sanctioned and preparing the material and price schedules for the construction.

Last but not the least, the Committee records with appreciation the whole-hearted co-operation and honest work received from the office staff in the conduct of the day-to-day affairs.

B. N. PRASAD,
U. P. BASU,
General Secretaries,
on behalf of the Executive Committee
of the Indian Science Congress
Association.

The 23rd December, 1954

MEETINGS OF THE COMMITTEES

GENERAL COMMITTEE

A meeting of the General Committee of the Indian Science Congress Association was held at 2-30 P.M. on Saturday, the 8th January, 1955, at the Central Hall, M. S. University, Baroda.

The following members were present :—

- | | |
|--|------------------------------------|
| 1. Prof. S. K. Mitra—President in the Chair. | 38. Shri J. M. Lohar. |
| 2. Shri N. Adhikari. | 39. Dr. B. Maitra. |
| 3. Dr. H. Banerjee. | 40. Shri K. L. Malhotra. |
| 4. Dr. C. Barat. | 41. Shri S. M. Maneck. |
| 5. Dr. K. C. Basack. | 42. Shri N. T. Mathew. |
| 6. Dr. J. N. Basu. | 43. Dr. B. N. Mehta. |
| 7. Dr. S. K. Basu. | 44. Dr. J. K. Mehta. |
| 8. Dr. N. M. Bhatt. | 45. Dr. N. K. Mukherjee. |
| 9. Shri B. B. Bhowmick. | 46. Dr. G. N. Naik. |
| 10. Dr. A. N. Bose. | 47. Prof. A. N. Namjoshi. |
| 11. Shri P. K. Bose. | 48. Prof. Harikingkar Nandi. |
| 12. Prof. M. C. Chaki. | 49. Dr. P. Nandi. |
| 13. Dr. Shyama Charan. | 50. Dr. B. S. Navalkar. |
| 14. Dr. B. Chatterji. | 51. Dr. V. G. Panse. |
| 15. Shri A. C. Chowdhury. | 52. Dr. C. S. Patel. |
| 16. Shri K. B. Dangayach. | 53. Dr. M. S. Patel. |
| 17. Dr. N. N. Das. | 54. Dr. Chittaranjan Ray. |
| 18. Dr. S. Datta. | 55. Dr. N. B. Roy. |
| 19. Dr. S. K. Datta. | 56. Shri B. R. Sahgal. |
| 20. Shri S. K. Datta. | 57. Mr. B. K. Sarkar. |
| 21. Dr. D. D. Deshai. | 58. Shri N. G. Savant. |
| 22. Shri M. H. Desai. | 59. Dr. J. C. Sen Gupta. |
| 23. Dr. S. V. Desai. | 60. Shri M. L. Sen Gupta. |
| 24. Shri S. S. Dharmanthi. | 61. Dr. B. R. Seth. |
| 25. Dr. S. N. Dhingra. | 62. Dr. N. M. Shah. |
| 26. Dr. S. C. Dutt. | 63. Shri M. M. Shah. |
| 27. Shri N. Ghatak. | 64. Shri N. H. Shah. |
| 28. Dr. T. N. Ghosh. | 65. Dr. P. Sen. |
| 29. Shri A. M. Godbale. | 66. Shri S. N. Sinha. |
| 30. Dr. S. L. Hora. | 67. Shri A. M. Talat. |
| 31. Dr. G. V. Jadhav. | 68. Dr. D. C. Tapadar. |
| 32. Shri B. B. Joshi. | 69. Dr. N. R. Tawde. |
| 33. Dr. R. J. Kalamkar. | 70. Dr. G. R. Toshniwal. |
| 34. Dr. B. K. Kar. | 71. Dr. H. C. Varma. |
| 35. Dr. K. S. Korgaonkar. | 72. Dr. S. Sethna—Local Secretary. |
| 36. Dr. D. N. Lall. | 73. Dr. B. N. Prasad } General |
| 37. Shri S. S. Lele. | 74. Dr. U. P. Basu } Secretaries. |

Item 1—To confirm the minutes of the meeting of the General Committee held on the 5th January, 1954.

The Minutes of the meeting of the General Committee held on the 5th January, 1954 (already circulated), were confirmed.

Item 2—To adopt the Annual Report for 1954.

The Annual Report for 1954, already circulated to the Members, was adopted.

Item 3—To announce the name of the General President for the Session 1957.

The President, Prof. S. K. Mitra, announced that Dr. B. C. Roy, Chief Minister of West Bengal, was elected as General President for 1956-57.

Item 4—To announce the result of election of General Secretary (Outstation).

The name of Shri B. B. Joshi of Baroda was announced by the President, Prof. S. K. Mitra, as having been elected General Secretary (Outstation) for three years with effect from 1st of February, 1955.

Item 5—To announce the name of the Treasurer for 3 years from 1st February, 1955.

The President, Prof. S. K. Mitra, announced that Shri B. K. Sarkar was elected as Treasurer for 3 years with effect from 1st February, 1955.

Item 6—To announce the results of the election of 10 Members to the Executive Committee and of 7 Members to the Council for 1955-56.

Prof. S. K. Mitra, General President, announced the names of the following members elected to the Executive Committee and the Council as shown for the year 1955-56 :—

Executive Committee.

Council.

- | | |
|--|----------------------------------|
| 1. Dr. C. S. Patel, Baroda. | 1. Dr. B. C. Kundu, Calcutta. |
| 2. Dr. K. N. Bagchi, Calcutta. | 2. Shri N. Adhikari, Calcutta. |
| 3. Dr. J. N. Basu, Calcutta. | 3. Shri R. G. Mukerji, Calcutta. |
| 4. Dr. A. C. Ukil, Calcutta. | 4. Shri K. L. De, Calcutta. |
| 5. Shri S. N. Sinha, Calcutta. | 5. Dr. T. N. Ghosh, Calcutta. |
| 6. Dr. B. N. Prasad, Allahabad. | 6. Shri P. Guha, Calcutta. |
| 7. Prof. S. N. Bose, Calcutta. | 7. Prof. D. D. Karve, Poona. |
| 8. Dr. S. L. Hora, Calcutta. | |
| 9. Dr. J. L. Bhaduri, Calcutta. | |
| 10. Prof. P. C. Mahalanobis, Calcutta. | |

Item 7—To announce the names of the Sectional Presidents for the Session 1956.

The President, Prof. S. K. Mitra, read out the following names of members elected as Presidents of the thirteen sections as shown against their names :—

Sections	Names of Presidents	
1. <i>Mathematics</i> ...	...	Prof. R. N. Sen, Calcutta.
2. <i>Statistics</i> ...	...	Dr. K. Nagabhusanam, Waltair.
3. <i>Physics</i> ...	...	Dr. B. Peters, Bombay.
4. <i>Chemistry</i> ...	...	Dr. S. H. Zaheer, Hyderabad-Dn.
5. <i>Geology & Geography</i> ...	...	Mr. A. M. N. Ghosh, Calcutta.
6. <i>Botany</i> ...	...	Prof. M. Sayeeduddin, Hyderabad-Dn.
7. <i>Zoology & Entomology</i> ...	...	Dr. M. L. Bhatia, Delhi.
8. <i>Anthropology & Archaeology</i> ...	...	Dr. M. N. Basu, Calcutta.
9. <i>Medical & Veterinary Sciences</i> ...	...	Dr. Subodh Mitra, Calcutta.
10. <i>Agricultural Sciences</i> ...	...	Dr. S. P. Raychoudhury, Delhi.
11. <i>Physiology</i> ...	...	Dr. D. V. S. Reddy, Madras.
12. <i>Psychology & Educational Sciences</i> ...	...	Dr. L. J. Bhatt, Baroda.
13. <i>Engineering & Metallurgy</i> ...	...	Dr. B. N. Dey, Calcutta.

Item 8—To announce the names of the members of the different Sectional Committees for the Session 1956, elected by the respective sections.

The President, Prof. S. K. Mitra, read out the following names of four members

elected as Members of the Sectional Committee in respect of each of the thirteen sections :—

Sections			Names of Members	
1. Mathematics	...	...	1.	Dr. U. N. Singh, Aligarh.
			2.	Mr. Sahib Ram, Kharagpur.
			3.	Mr. M. C. Chaki, Calcutta.
			4.	Mr. S. D. Manerikar, Baroda.
2. Statistics	...	...	1.	Dr. N. M. Bhatt, Baroda.
			2.	Dr. D. N. Lal, Patna.
			3.	Dr. A. K. Gayen, Kharagpur.
			4.	Dr. D. V. Rajlakshman, Madras.
3. Physics	...	...	1.	Dr. R. D. Godbole, Bombay.
			2.	Dr. G. K. Mehta, Dharwar.
			3.	Dr. S. S. Dharmatti, Bombay.
			4.	Dr. N. W. Chiplonkar, Poona.
4. Chemistry	...	...	1.	Dr. R. P. Patel, Ahmedabad.
			2.	Dr. W. V. Bhagwat, Indore.
			3.	Dr. G. S. Sahariya, Delhi.
			4.	Dr. M. B. Kabad, Bombay.
5. Geology & Geography	...	...	1.	Mr. P. C. D. Hazra, Bombay.
			2.	Dr. V. W. Chiplonkar, Saugar.
			3.	Dr. V. L. S. Prakash Rao, Madras.
			4.	Prof. V. S. Ganathan, Poona.
6. Botany	...	...	1.	Dr. V. S. Phatak, Baroda.
			2.	Dr. K. S. Bhargava, Nainital.
			3.	Prof. A. N. Namjoshi, Bombay.
			4.	Dr. B. Samantarai, Cuttack.
7. Zoology & Entomology	...	...	1.	Dr. G. P. Sharma, Hoshiarpur.
			2.	Dr. P. N. Ganapati, Waltair.
			3.	Dr. M. B. Lal, Lucknow.
			4.	Dr. B. K. Behura, Cuttack.
8. Anthropology & Archaeology ..			1.	Dr. M. N. Srinivas, Baroda.
			2.	Dr. B. Ch. Chhabra, New Delhi.
			3.	Shri Sachchida Nanda, Ranchi.
			4.	Shri P. K. Bhowmik, Calcutta.
9. Medical & Veterinary Sciences			1.	Dr. P. G. Pandey, Mathura.
			2.	Dr. N. B. Roy, Calcutta.
			3.	Dr. J. C. Banerjee, Calcutta.
			4.	Dr. T. P. Sinha, Patna.
10. Agricultural Sciences	...	...	1.	Dr. K. S. Narayanan, Delhi.
			2.	Dr. C. C. Saha, Anand.
			3.	Dr. P. N. Bhaduri, Delhi.
			4.	Dr. T. J. Mirchandani, Delhi.
11. Physiology	...	...	1.	Dr. B. K. Anand, Delhi.
			2.	Dr. S. N. Ray, Izatnagar.
			3.	Dr. A. Roy, Mathura.
			4.	Dr. A. N. Bose, Calcutta.
12. Psychology & Educational Sciences	...	...	1.	Dr. Bimaleswar De, Patna.
			2.	Shri Nirod Mukerji, Gauhati.
			3.	Shri N. L. Dosajh, Jullundur.
			4.	Mrs. Pramila T. Phatak, Baroda.
13. Engineering & Metallurgy	...	...	1.	Dr. H. N. Das Gupta, Dhanbad.
			2.	Mr. J. K. Choudhury, Jadavpur.
			3.	Shri J. K. Choulhury, Jadavpur.
			4.	Dr. G. P. Chatterjee, Howrah.

Item 9—To announce the venue of the 1956 Session.

The President, Prof. S. K. Mitra, informed the Committee that at the Statutory Meeting of the Executive Committee held at New Delhi on 22-10-54, the invitation of the University of Agra was accepted and that Agra was selected as the venue for the next Session.

Item 10—To consider any other business with the approval of the Chairman.

(a) After seeking permission from the Chairman, Dr. S. K. Basu, President, Medical and Veterinary Sciences, suggested that the places for sectional meetings of different sections should be so situated as not to inconvenience the members participating especially in joint discussions between two or more sections. He expressed the opinion that during the current session, the places allocated for four sections, viz., Medical and Veterinary Sciences, Anthropology and Archaeology, Physiology and Chemistry, were not conveniently situated, due to which some of the joint discussions arranged between these sections were adversely affected. He suggested that this might be kept in view while making arrangements for holding the Sessions in future.

Dr. S. K. Basu further suggested that the catering arrangements should not be made at a distant place from the buildings in which the sectional meetings are arranged.

The President, Prof. S. K. Mitra, while agreeing with the views expressed by Dr. S. K. Basu, pointed out that the Science Congress was growing bigger and bigger and the number of members attending each session was rapidly increasing, and this put a great strain on the Local Committee. He, however, said that, in future, instructions could be given to the Local Committee to arrange for holding the meetings of some particular sections in one building. He commended the arrangements made by the Local Committee at Baroda in spite of some severe difficulties which they were faced with.

(b) Dr. M. S. Patel suggested that :

(i) More time should be devoted, during the Sessions, for reading Papers that that allocated for lectures, Special Lectures, discussions etc., which were, at present, too many.

(ii) As in the printed programmes of scientific conferences held in some foreign countries, there should be some indication in our printed programme also as to when a particular important paper would be read in a section.

(iii) After the sessions of Science Congress, we should publish the most outstanding contributions to the cause of science during the year, as is done by the British Association for the Advancement of Science.

(iv) Our scientists should also be given opportunities to deliver Special and Popular lectures. At present, most of such lectures were reserved to be delivered by visiting scientists.

(v) As the Science Congress Sessions were held at different places each year for popularising science among common people, arrangements should be made for some interesting scientific experiments to be shown to the public visiting the sessions.

The president, Prof. S. K. Mitra, remarked that the suggestions made by Dr. M. S. Patel would be considered by the Executive Committee.

(c) Dr. B. R. Seth suggested that not more than 50% of Popular Lectures should be arranged to be delivered by visiting scientists. He said that, whereas we should derive the best of benefit from the presence of distinguished visiting scientists in our midst, we should not ignore our own scientists who should be given equal opportunities to deliver lectures which would create in them a sense of confidence.

(d) Dr. Shyama Charan from Gwalior said that now the programme of the Indian Science Congress was becoming very crowded and it was not possible for the members to attend all those functions which they would like to attend and, even if they found time to attend some of the functions, it was not possible for them

to remember all the facts narrated at those functions. He proposed that all the Popular Lectures and Special Lectures should be printed and a copy of the same be supplied to the members, because those lectures in some cases were very important and useful. If the Indian Science Congress Association found some difficulty in publishing the full text of lectures because of the volume becoming too large, he suggested that at least the abstracts of such lectures should be printed.

The President, Prof. S. K. Mitra, remarked that the Executive Committee was guided by the General Body and if it was the consensus of opinion that our own scientists should be given as much opportunities as the visiting scientists, in respect of delivering lectures during the sessions of the Science Congress, the matter would be duly considered by the Executive Committee.

As regards the printing of lectures, the President said that the Journal of Scientific and Industrial Research had published the abstracts or summaries of lectures delivered at Hyderabad Session. He explained that printing etc. of all lectures would present great difficulty. But, he said, the Executive Committee would give due consideration to the matter.

(e) Dr. P. Sen, President, Zoology and Entomology Sections, said that from what he had heard so far from the various members, who spoke prior to him, he gathered that they were feeling that the business of the Session was not carried out as it should have been. He said that he was almost stuck to his own section and could not go to see around as to what was being done in other sections. He told that his section had transacted heavy amount of work inasmuch as 40 papers were read in his sections and some high class symposia were also held. He said that some difficulties, which the members might have experienced at Baroda in respect of location of the places for meetings of different sections, were not new and were usually experienced at every session because, after all, the local authorities had to arrange everything with their limited resources and the members should not grudge if they had to undergo any minor difficulties. He opined that the members should try to appreciate the best and sincere efforts made by the Local Committee in making various arrangements for holding the Session.

Dr. U. P. Basu, General Secretary (Headquarters), said that no impression should be left on the Local Committee that there was any flaw in their arrangements. As a matter of fact, the arrangements made by them were splendid considering the great strain to which they were put with their limited resources and various handicaps. He said that the Local authorities really deserved thanks and commendation for whatever they had done. This opinion was shared by all the members present in the meeting.

After a vote of thanks to the office-bearers, members of the Local Committee and volunteers was passed, the meeting terminated.

Sd./- U. P. BASU,
General Secretary,
Indian Science Congress Association.

**PROCEEDINGS OF THE MEETING OF THE COUNCIL OF THE INDIAN
SCIENCE CONGRESS ASSOCIATION HELD AT 5-30 P.M. ON
MONDAY, THE 3RD JANUARY, 1955, IN THE ZOOLOGY
DEPARTMENT, M. S. UNIVERSITY, BARODA.**

The following members were present :—

- | | |
|---|-----------------------------------|
| 1. Prof. S. K. Mitra—President in
the Chair. | 14. Dr. R. J. Kalamkar. |
| 2. Shri N. Adhikari. | 15. Dr. B. Mukerji. |
| 3. Prof. S. P. Agharkar. | 16. Shri R. G. Mukerji. |
| 4. Prof. K. N. Bagchi. | 17. Dr. V. G. Panse. |
| 5. Dr. J. N. Basu. | 18. Shri B. K. Sarkar. |
| 6. Prof. S. K. Basu. | 19. Prof. J. M. Sen. |
| 7. Shri B. B. Bhowmick. | 20. Dr. P. Sen. |
| 8. Dr. A. C. Chatterji. | 21. Dr. J. C. Sen Gupta. |
| 9. Dr. B. K. Chaterji. | 22. Dr. B. B. Seth. |
| 10. Dr. N. N. Das. | 23. Shri S. N. Sinha. |
| 11. Dr. B. C. Guha. | 24. Shri V. P. Sondhi. |
| 12. Dr. S. L. Hora. | 25. Dr. B. N. Prasad } General |
| 13. Shri B. B. Joshi. | 26. Dr. U. P. Basu } Secretaries. |

Before commencement of business, the President, Prof. S. K. Mitra, referred to the sudden and untimely death of Dr. S. S. Bhatnagar, Secretary, Ministry of Natural Resources & Scientific Research and Director, Council of Scientific & Industrial Research and an Honorary Member of the Indian Science Congress Association. He read out the Resolution of Condolence which was passed at the meeting of the Executive Committee held earlier during the day. The members stood in silence for two minutes and passed the following resolution :—

“The Indian Science Congress Association is deeply grieved at the sad and sudden demise of Dr. Shanti Swarup Bhatnagar, an eminent scientist, an outstanding organiser of scientific institutions and a man of dynamic personality. He was an Honorary Member and a past General President of the Association and a most valued member of its Executive Committee. The Indian Science Congress Association records its sense of irreparable loss and conveys its heartfelt condolences and sympathies to the members of the bereaved family.”

Item 1—To confirm the minutes of the meeting of the Council held on the 2nd January, 1954.

CONFIRMED.

Item 2—To confirm the minutes of the meeting of the members of the Council, resident at Calcutta, held on the 17th November, 1954.

In this connection, some members pointed out that, as this meeting was convened only for the Council Members resident at Calcutta and no notice of the meeting was given to all the members of the Council, the present meeting had no powers to confirm the minutes.

The General Secretary (Headquarters), Dr. U. P. Basu, explained that the meeting was called to discuss an emergent situation arising out of Shri Jawahar Lal's inability to inaugurate the Session earlier than 4th January, 1955, i.e., on 2nd January, 1955, as was previously scheduled. There being no time to give Notice

to all Members of the Council, this meeting was confined only to Calcutta members of the Council. After some discussion, it was resolved that :

- (i) The Council Members approve the action taken by the members of the Council resident in Calcutta.
- (ii) In future, any meeting of the Council should be held by giving notice to all the members.

At this stage, Dr. B. N. Prasad, General Secretary (Outstation), inquired whether the Prime Minister himself had desired, as worded in the minutes, that the inauguration ceremony should take place on 4th January, 1955, instead of 2nd January, 1955.

Dr. U. P. Basu, General Secretary (Headquarters), informed that, although the Prime Minister himself did not write for making such a change, Dr. S. S. Bhatnagar conveyed his desire first by a trunk call message from Delhi and then expressed through a letter that it was the desire of the Prime Minister to inaugurate the Session on the 4th January, 1955. Some discussion ensued on this point and it was ultimately agreed that :

The President, Prof. S. K. Mitra, should be authorised to change in a suitable manner the language of the minutes of the meeting in question, so far as it related to the "desire of the Prime Minister to inaugurate the Session on the 4th January, 1955".

Item 3—To consider the Annual Report to be presented to the General Committee.

Referring to the list of distinguished scientists from abroad, who attended the Science Congress Session in 1954, as given on page 2 of the Annual Report, Dr. A. C. Chatterji suggested that a complete list of such scientists with their respective countries should be incorporated in the Annual Report. This prompted a discussion and the following three suggestions were put forward by three members :—

(i) Dr. R. J. Kalamkar supported the view of Dr. A. C. Chatterji, suggesting that a complete list of visiting scientists was necessary to be inserted in the Annual Report.

(ii) Dr. B. R. Seth expressed that in his opinion there was no need for such a complete list and he suggested that only the number of visiting scientists and the names of countries, which they represented, would be sufficient to be incorporated in the Annual Report.

(iii) Dr. S. L. Hora suggested that not only the names of scientists from abroad but also names of Indian Delegates should be given in an Appendix form in the Annual Report.

After some discussion, it was agreed that :

A complete list of visiting scientists as well as Indian Delegates attending the Session should be printed as an Appendix to the Annual Report while in the body of the Report only the number of scientists with names of their respective countries should be mentioned.

Prof. S. P. Agarkhar referred to the Standing Committee for visiting scientists and the International Relations Committee, the details of which were given on pages 2 and 3 of the Annual Report, and suggested that some constitution and regulations for the proper functioning of these Committees should be framed. After some members supported the view of Prof. Agharkar, it was agreed that :

Some definite constitution and regulations for these two Committees should be framed.

Referring to the Publication Committee, Prof. S. P. Agharkar pointed out that the Publication Committee should have held more sittings with a view to regulate the work of publications of the Indian Science Congress in a more efficient manner.

THE SUGGESTION WAS APPROVED.

In connection with interlinking of Societies with the Indian Science Congress Association, some members suggested that there should be some regulations for such an interlinking. The constituent societies should be affiliated with the Indian Science Congress Association and it should be obligatory on the part of such interlinking societies to pay some subscription to the Association. The General Secretary (Headquarters), Dr. U. P. Basu, informed that the proposal of the interlinking of various societies and Associations was already under consideration, but nothing had yet been finalised.

Referring to the holding of meetings by various Societies at the venue of Science Congress Session, some members pointed out that, as some of the Societies and Associations held their meetings much in advance of the inauguration of the Session of the Indian Science Congress, it meant great strain and hardship for the local authorities to cater for their requirements, and suggested that it was time to consider whether these Societies and Associations should be allowed to continue to hold their meetings as at present. At this stage, Dr. B. Mukerji pointed out that, as the whole matter regarding the interlinking of societies was still under study, it was no use discussing the matter at this stage.

It was then agreed that in arriving at a decision about interlinking of Societies with the Indian Science Congress Association, the views expressed by various members should be kept in mind.

Initiating discussion on the financial position of the Association, as given on page 9 of the Annual Report, Prof. S. P. Agharkar referred to the surplus of Rs. 8,915-14/-, as shown against the accounts for the year 1953-54, and pointed out that, as this figure was arrived at after making provisions for the Reserve Fund and Building Fund, the actual surplus should be considered to be Rs. 13,777/12/- i.e. the amount available before making any provisions for the Reserve Fund and Building Fund. He said that it appeared that the Balance Sheet was not properly drawn up.

Reply to this point Dr. A. C. Chatterji referred to the Statement of Accounts as given in the Appendix of the Report and mentioned that it was a simple statement of Income and Expenditure. Besides, it was necessary to allocate money to the Reserve Fund and Building Fund before calculating the surplus or deficit. He said that there was nothing wrong in showing Rs. 8,915/14/- as the surplus.

The President, Prof. S. K. Mitra, informed the Committee that the surplus was mainly due to the fact that some bills, which were due for payment before the close of the financial year, were received after the accounts for the year were audited, and, as such, were not taken into account. This fact was already mentioned in the foot-note given on page 9.

Dr. B. N. Prasad, General Secretary (Outstation), pointed out that the Accounts were audited by a firm of Chartered Accountants and if any member was apprehensive of the correctness of the system of maintaining accounts of the Indian Science Congress Association, the matter should be referred to the Chartered Accountants.

Discussing about the Building Fund, Prof. J. M. Sen pointed out that the names of Members, who agreed to or promised to enroll themselves as 'Life Members', should not be printed as 'Donors' to the Building Fund. As a matter of fact, subscription for Life Membership was no contribution to the Building Fund. After some discussion it was agreed that :

The subscription for the Life Membership should not be intermixed with donations to the Building Fund and that this should have separate treatment in future Annual Reports.

At this stage, Prof. S. P. Agharkar suggested that an appeal should be made to all Members of the Association to donate some money to the Building Fund.

This suggestion was approved.

Item 4—To consider ways and means for improving the work of the Association.

Dr. B. Mukerji said that it was difficult to devise, through discussions, ways and means for improving the work of the Association and suggested that Members should send their suggestions for effecting improvements in the conduct of work of the Association to the General Secretary (Headquarters), in writing.

This suggestion was agreed to by all members present in the meeting.

The meeting terminated with a vote of thanks to the Chair.

Sd/- U. P. BASU,
General Secretary,
Indian Science Congress Association.

COMMITTEE ON SCIENCE AND ITS SOCIAL RELATIONS

PROCEEDINGS OF THE ANNUAL MEETING OF THE COMMITTEE ON SCIENCE AND ITS SOCIAL RELATIONS.

The Annual Meeting of the Committee was held at the Baroda College Building on the 5th January, 1955, at 2-15 P.M. More than 20 members of the Committee were present and after the formal meeting of the Committee more than 150 members of the Indian Science Congress attended the lectures delivered by Prof. M. S. Thacker of Bangalore and Mr. Ti Chao-Pai of China immediately.

1. The Convener (Mr. J. M. Sen) presented the Annual Report for 1954 and it was adopted after the Chairman of the meeting (Dr. Hora) had made a few observations.

2. The Committee recommended to the Executive Committee of the Indian Science Congress that the Committee on Science and its Social Relations for the year 1955, be constituted as follows :—

1 to 4—President, two Secretaries and Treasurer of the Science Congress (Ex-officio).

5 to 17—Sectional Presidents of 13 Sections (Ex-officio).

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|-------------------------------------|--|
| 18. Dr. S. P. Agharkar (Poona). | 35. Dr. N. S. N. Sastry (Bangalore). |
| 19. Prof. S. N. Bose (Calcutta). | 36. Dr. Suhrit Sinha (Calcutta). |
| 20. Mr. Nirmal K. Bose (Calcutta). | 37. Dr. N. V. Subba Rao (Hyderabad). |
| 21. Dr. K. Chandrasekharan (Bombay) | 38. Dr. Subrahmanian Mysore). |
| 22. Mr. Patwardhan (Indore). | 39. Prof. N. S. Thacker (Bangalore). |
| 23. Dr. B. C. Guha (Calcutta). | 40. Dr. A. C. Ukil (Calcutta). |
| 24. Dr. J. C. Ghosh (Delhi). | 41. Mr. D. N. Wadia (Delhi). |
| 25. Dr. S. L. Hora (Calcutta). | 42. Dr. Ellis (UNESCO-Delhi). |
| 26. Mrs. I. Karve (Poona). | 43. Dr. Ali Naqvi (Delhi). |
| 27. Dr. J. N. Mukherjee (Calcutta). | 44. Mr. K. L. Malhotra (Delhi). |
| 28. Dr. B. Mukerji (Lucknow). | 45. Mr. N. Datta-Majumdar (Calcutta). |
| 29. Dr. Nirod B. Roy (Calcutta). | 46. Dr. J. D. N. Versburgs (Science
Co-operation Office, UNESCO-
Delhi). |
| 30. Dr. S. C. Seal (Calcutta). | 47. Prof. J. M. Sen (Calcutta)
(Convener). |
| 31. Dr. A. Rahman (Hyderabad). | |
| 32. Dr. Indra Sen (Pondichery). | |
| 33. Prof. M. N. Saha (Calcutta). | |
| 34. Dr. P. G. Saha (Bombay). | |

Prof. M. S. Thacker then delivered a lecture on "Electrical Energy in the Service of Man". A member of the Delegation from China, namely, Ti Chao Pai then gave a talk on "Social and Economic reconstruction of China".

ANNUAL REPORT OF THE COMMITTEE ON SCIENCE AND ITS SOCIAL RELATIONS FOR THE YEAR 1954.

The last Annual Meeting of the Committee was held on the 3rd January, 1954, at 2-15 P.M., at the Arts College Building of the Osmania University at Hyderabad. Twenty members of the Committee were present. Dr. S. L. Hora presided.

After the adoption of the Annual Report for 1953 presented by the Convener personnel of the Committee for 1954 was suggested and recommended for approval and final constitution by the Executive Committee of the Indian Science Congress.

At the conclusion of the meeting of the Committee Dr. A. C. Ukil read a paper on "Science and Society" and a lively discussion followed in which Prof. D. D. Kanga, Dr. B. Mukerji, Dr. U. P. Basu, Dr. A. Naqvi, Dr. N. S. N. Shastri, Dr. Indra Sen and several other members took part. Dr. B. Mukerji's suggestion to have a forum on Science and its Social Relations once a year at a place outside Calcutta was accepted.

The last year's Annual Report contained the principles of construction of a syllabus on General Science and they were published in Part I of the Proceedings of the Indian Science Congress held at Hyderabad. The Convener was asked by the Committee to present at the next Session of the Congress to be held at Baroda a report on the aims of teaching science to all students keeping in mind the needs of the individual and of the community.

THE AIMS OF SCIENCE TEACHING

Before entering on any discussion of the contents of courses or of the methods of teaching Science in the early stages, it is desirable to state the aims which teachers of the subject have in mind.

Analysis of views generally held shows that the numerous reasons urged to justify the inclusion of any subject in the curriculum can be roughly classified under three headings :

- (a) utilitarian or vocational : it helps the pupils in their everyday life, or may be necessary in their future occupations ;
- (b) disciplinarian : it teaches them to think ; it sharpens their mind ;
- (c) cultural : its inclusion is desirable because it forms an essential part of our social heritage.

The study of Science is certainly useful, both for the community and for the individual. As to the former, the prosperity of a nation, indeed its very existence, requires a continuous supply of highly qualified technical experts. But the preparation of such experts cannot be considered as one of the functions of a school, for technical training can be carried on efficiently only in specially equipped institutions ; and it need not be started before the age of sixteen years. Moreover, the total number of technicians actually engaged in fundamental research, or in work requiring specialised scientific knowledge, forms only a very small proportion of the total population. In a Secondary School, it is impossible to achieve, and unwise to attempt, the development of a course which acquires meaning only when completed by advanced studies.

The pre-preparation of experts is, however, one of our tasks, and this can best be achieved by broadening the syllabus ; for it is at school that particular talents are discovered and their development fostered. Many a potential specialist, in biological sciences especially, has been lost to the world by the narrowness of the teaching at school. Moreover, much of the work of the expert is concerned with advising specialists in other fields, and his task will be facilitated if he has some appreciation of their interests and activities, and some knowledge of the special terms they employ.

In one way especially, the teaching of science to all benefits the community. A state will best function when the intellectual climate, in which its members live, is suited to the tasks they perform. Scientists and inventors do better work when their efforts do not meet blind opposition, and when the spirit of the times is in sympathy with them. Further, it is desirable in the highest degree that the members of a democracy should understand, even if only in simplified form, the general interrelationship of the trades and occupations of their country, and that they should appreciate the utility of the expert and the kind of advice

he may be trusted to give. We should therefore give our pupils some notion of the many ways in which Science enters our lives and has influenced and altered our occupations. We should show them that its study requires a particular mode of approach to problems, that the scientific spirit implies the dispassionate analysis of well-authenticated data, and that prejudice, superstition and dogmatic assertion are the enemies of vigorous development. Clearly, these objects are not to be achieved by the intensive study of too restricted a field. We must choose our samples so as to illustrate a large range of science and its manifold ramifications. Though the aim discussed above is too wide, and possibly too vague to give immediate practical guidance, it does reinforce the generally accepted idea that the school science course must find its starting-point and its inspiration in the actual human environment.

To the individual, the study of Science may be useful, in the narrow sense of the word, in two ways: (a) it may help him to earn his living, and (b) it may help him to carry out more efficiently the activities of his ordinary life.

The exclusive acceptance of the first of these two claims would lead us to arrange vocational courses. While these have the advantage of stimulating the interest of our pupils, they suffer from two great drawbacks. Firstly, a purely vocational curriculum presupposes a static, unchanging society. It is built up by studying the activities and trades in which people are actually engaged at the moment and then dealing with these. But, in fact, these occupations change and we cannot know precisely what scientific knowledge will be found vocationally useful in twenty-five years' time. Secondly, the occupations of the people exhibit such amazing diversity that it is impossible to cater specifically for more than a small fraction. Hence we cannot consider vocational preparation as one of our main aims in a Secondary School.

In ordinary life, however, opportunities for using scientific knowledge are rapidly increasing in number. While it is true that no item of scientific knowledge can be considered essential, few will deny that even the most rudimentary acquaintance with scientific facts and principles can often be directly useful. Some knowledge of Biology, for example, may help towards more rational and healthy living. This subject forms the best foundation for a study of the laws of hygiene, and an appreciation of the data underlying practical hygienic advice may facilitate its rapid adoption. But here again, while admitting the possible value of such claims, it is not easy to see how they will help us to decide what to include, or what to exclude, from the curriculum. The total number of contacts is so vast as to be almost coextensive with the whole range of modern science.

Perhaps the most important reflections which arise from these considerations are:

- (a) the importance of a broadly conceived course touching ordinary life at many points; and
- (b) the great importance of stressing scientific principles of wide generality, for when these are thoroughly understood, their useful application may easily be extended.

The second claim advanced in favour of the teaching of Science in schools rests on belief in the possibility of transfer of training or of generalised training. The study of Science is said to develop certain powers of clear and vigorous thinking, of coherent and logical deduction, of exact and accurate observation. All these are very desirable qualities and their more general diffusion must be assisted in every way. Many teachers of Science hope that habits of this sort, acquired in the class-room, will automatically be generalised and applied to the wider concerns of national life. Such arguments were often urged in defence of the courses in weighing and in practical measurements which have served to introduce the study of Science to so many young children.

This is not the place to discuss at length this vexed question. We would point out, however, that experimental evidence has shown quite definitely that the possibilities of transfer of training are much smaller than had formerly been supposed. On the other hand, it has been shown that the importance of the sentiments which grow up around any subject cannot be overestimated. It is essential for future success that a child's first introduction to Science should not lead to boredom, to a feeling of failure or insufficiency, or to an impression that it is a formalised study not directly applicable to things that interest him.

The influence of these results on our work is obvious. Since the disciplinary values of a subject cannot be urged as the main arguments in its favour, we must not include in our syllabuses any matter whatever which is taught only for the sake of the training it gives. It is no longer possible to defend a narrow curriculum by urging the claim that it trains boys to think and to appreciate scientific method. It is doubtless true that a concentrated course in Chemistry, for instance, may teach a boy to use chemical concepts efficiently but it is not worth great expenditure of time to train as budding chemists boys who will not become chemists. They will not necessarily become better scientists, still less better citizens. The psychological findings, on which the above remarks are based, remove one of the last arguments against the wider acceptance of courses in General Science.

In connexion with the third claim advanced in favour of the teaching of Science—the cultural values of the subject—it should be remembered that the school is, above all, a place where children undergo carefully selected experiences which we believe will be of value to them, both immediately and in adult life. Since they will become full members of a community which has enshrined its beliefs and its ideals in particular modes of thought and of expression, we believe that all children have a right to demand of us the opportunity of appreciating the meanings of these. We recognise fully the fact that the genius of our race has found very rich and satisfying expression in a literature and an art of high excellence, but we would urge that the peculiar intellectual glory of the Western peoples has been the creation of a Natural Science which is far in advance of that of earlier times.

No one can now be considered truly cultured, no one can be considered as having felt the European spirit at its best, if he has never had his imagination stirred by that great adventure of ideas on which we are engaged: the scientific exploration of natural phenomena. Of all the claims made for the inclusion of Science in a school curriculum, the strongest undoubtedly is that which stresses the cultural value which the subject possesses.

The foregoing considerations lead us to the conclusion that we should arrange our courses in as liberal a manner as possible, and that they should be designed to cover a wide range, at any rate in the initial stages.

Faith in General Science courses of wide compass does not blind us to the very real practical difficulties which do much to prevent their immediate adoption. To some extent these are due to a belief, fairly widespread among teachers in schools, that more specialised courses, say in Chemistry, in Physics, or in Biology, have greater educational value than those in which an attempt is made to deal with the principal aspects of many branches. It is clear that by restricting one's range more time becomes available for dealing thoroughly with the section selected the work can be made more detailed and greater stress can be laid on quantitative and mathematical aspects. University authorities have, in the past, done much to encourage these beliefs by an undue narrowing of their entrance examinations, so that it has been, and is still possible to satisfy examiners in Science after studying only Heat and Light.

Belief in the greater educative value of the single science subject is evidently connected with exaggerated faith in the possibilities of generalised mental training

already discussed, which leads to the idea that the science teacher's main task is to inculcate appreciation of the scientific method and that this implies treating a single subject thoroughly and logically. But it is difficult to see why a broad course necessarily involves less thoroughness of teaching than a narrow one, or why it should lead to a less logical or stimulating treatment. Nor are single subjects necessarily more effective in inculcating in the pupils an understanding of scientific method or an appreciation of the scientific attitude.

Whether such understanding and appreciation are really inculcated or not will depend more on the method of teaching than on the subject-matter dealt with. In any case, arguments for the teaching of scientific method often ignore the fact that this method is protean in its manifestations and that its essence lies in its adaptation to the material studied. To distinguish sharply between method and content involves us in a dualism which has no correspondence with reality. The man of science studies certain problems in a certain way, and his methods and the material he chooses exert on each other a reciprocal influence. These features of the scientific method will be demonstrated most easily by choosing our material from a wide field.

Turning now for a moment from the subject-matter to the pupils whom we teach, we should realise that Natural Science is unique in the appeal it may make to their spirit of enquiry. Any method of teaching which destroys that curiosity is foredoomed to failure. Children are so inquisitive about their environment that it is folly not to take advantage of the opportunity which they themselves offer us to teach them the things they are eager to know. Stated thus briefly, the matter seems simple, but it must be remembered that the interests of children change rapidly between the ages of eleven and sixteen years, a point to which we shall revert when we come to consider the methods rather than the content of our teaching. Suffice it now to say that, in framing our syllabus, the natural curiosity of the pupils about their environment should influence us at least as strongly as the logical sequence of ideas with which we as adults have become familiar.

General Science should therefore be a course of scientific study and investigation which has its roots in the common experience of children and which does not exclude any one of the fundamental special sciences.

J. M. SEN,
Convener,
Committee on Science and
Its Social Relations.

INDIAN SCIENCE CONGRESS ASSOCIATION

(REGISTERED UNDER ACT XXI OF 1860)

RULES

NAME

1. The name of the Society shall be the INDIAN SCIENCE CONGRESS ASSOCIATION* hereafter called the Association.

OBJECTS

(A) The objects of the Association shall be :—

- (a) To advance and promote the cause of Science in India ;
- (b) To hold an annual Congress at a suitable place in India ;
- (c) To publish such proceedings, journals, transactions and other publications as may be considered desirable ;
- (d) To secure and manage funds and endowments for the promotion of Science, including the rights of disposing of, or selling all or any portion of the properties of the Association ;
- (e) To do and perform any or all other acts, matters and things as are conducive to, or incidental to, or necessary for, the above objects.

(B) Membership of the Association shall be open to all persons and organisations interested in the advancement of Science in India.

CONSTITUTION

Members and Subscriptions

2. The Association shall consist of Members, Honorary Members, Sessional Members, Student Members and Institutional Members.†

(A) A person paying an admission fee of Rupees five (Rs. 5/-) and agreeing to pay an annual subscription of Rupees twelve (Rs. 12/-) shall become a Member of the Association. The annual subscription of a member shall become due on the 1st February of each year. Any one who fails to pay the subscription on or before the 15th July in any year, shall lose the right of voting and/or holding any office of the Association for that year. A member failing to pay the annual subscription by the end of January following, shall cease to be a Member.

* The Registered Office of the Association is situated at 1, Park Street, Calcutta.

† Persons and Institutions coming under the category of Benefactors in terms of the old Rule No. 7 shall continue to enjoy the rights and privileges embodied in that Rule.

Old Rule No. 7:

Any person paying a lump sum of Rs. 500/- or more or any institution paying a lump sum of Rs. 1,000/- or more shall be a Benefactor of the Association, subject to the approval of the Executive Committee. Benefactors shall have all rights and privileges of Members during their lifetime.

An institutional Benefactor shall have the right to nominate one person as Member of the Association.

- (B) Honorary Members of the Association shall be persons eminent for their contributions to Science, or persons who have rendered conspicuous service to the development and welfare of Science in India. The number of such members shall be limited to 25, of whom not more than two shall be elected in any one year. Honorary members shall be elected by the Council, by not less than two-thirds majority, on the recommendation of the Executive Committee. Such election shall be reported to the General Committee at its Annual Meeting.
- (C) Sessional members shall be those who join the Association for the session only. Such members shall be of 2 categories :
- | | | | |
|----------------------|-----|-----|-----------------------|
| (a) Sessional Member | ... | ... | Subscription Rs. 15/- |
| (b) Student Member | ... | ... | Rs. 5/- |
3. **Compounding fee :—**
- (A) Any Member may compound all future annual subscriptions by the payment of a single sum of Rs. 200/- (Rupees Two hundred).
- (B) Any person who has been continuously a Member for 10 years or more, shall be allowed a reduction in the compounding fee of Rs. 5/- for every year of such membership, provided always that under no circumstances the compounding fee shall be less than Rs. 50/-

RIGHTS AND PRIVILEGES

4. A Member of the Association shall have the following rights and privileges :—
- (A) To contribute papers for reading at the session of the Congress.
- (B) To receive free of charge, the usual publications issued by the Association for the Session, and other publications at a concession rate to be determined by the Executive Committee from time to time.
- (C) To fill any office in the Association on being duly elected thereto.
5. An Honorary Member shall have the rights and privileges of a Member but shall not be eligible to hold any office other than that of the General President.
6. (A) A Sessional Member shall have the right to contribute papers for reading at the session of the Congress and to receive free of charge, the usual publications issued by the Association relating to the session of the Congress of which he is a member.
- (B) A Student Member shall have the right to submit papers for reading at the session of the Congress, of which he is a member, provided such papers be communicated through a Member, Sessional Member or an Honorary Member of the Association.
- (C) A Student Member shall, before admission, be duly certified by the Head of his Institution to be a bonafide student.

OFFICIAL YEAR

7. The official year of the Association shall be from the 1st February to the 31st January of the following year, but the financial year shall relate to the period from the first of April to the 31st March of the following year.

EXECUTIVE COMMITTEE

8. There shall be an Executive Committee for carrying on the administration of the Association. All important questions of policy shall be referred to the Council in the first instance, and the recommendations of the Executive Committee thereon shall be placed for consideration before the General Committee at its Annual Meeting.
9. (A) The Executive Committee shall consist of the President, the two General Secretaries, the Treasurer and 10 Members elected by the General Committee. It shall also include one nominee of the Government of India, preferably from among the Members of the Association.
- (B) For the purpose of election of 10 members of the Executive Committee by the General Committee, a Member or an Honorary Member may propose the name of any Member. Such proposal must, however, be seconded by another Member (or Honorary Member) and reach the General Secretary at Head Quarters before the 15th of September. The Executive Committee shall scrutinise the nominations and circulate the valid names, together with such other names, not exceeding three, as it may suggest, to all Members and Honorary Members for election by ballot. The ballot paper shall be scrutinised by the President or his nominee and such of the General Secretaries as are present at the session and the result of the ballot shall be announced during the session at the Annual Meeting of the General Committee.

If any vacancy occurs in the Executive Committee after the Annual Session but before the First Statutory Meeting, such a vacancy shall be filled up by the next man in the voting list of the session. In case the vacancy occurs after the First Statutory Meeting, the Executive Committee shall fill up such vacancy in the Executive Committee by one, preferably from the list of voting stated above.

- (C) Members who have served on the Executive Committee for three successive years, shall not be eligible for election as members of the Executive Committee for a period of two years thereafter.
- (D) The Executive Committee shall co-opt as its members not more than two Local Secretaries for the ensuing session of the Congress.

POWERS AND DUTIES OF THE EXECUTIVE COMMITTEE

10. The powers and duties of the Executive Committee shall be as follows :—
- (A) To manage the affairs of the Association and for this purpose to frame such regulations, as may be deemed necessary, for the efficient administration of the Association ; provided always that such regulations be not inconsistent with anything contained in these Rules and that they be reported to the next meeting of the General Committee.
- (B) To direct and manage the publication of the proceedings and other publications of the Association.
- (C) To appoint salaried officers, clerks or servants as may be considered necessary, to fix their salaries, gratuities, honoraria and privileges, and to suspend, dismiss or dispense with their services as may be required, provided that all such actions shall be reported to the next meeting of the General Committee.

- (D) To prepare and present to the General Committee at its Annual Meeting, to be held during the session of the Science Congress, the Annual Report of the working of the Association and the Audited Statement of the income and expenditure for the preceding financial year, the balance in hand, the assets and liabilities, together with the budget of the estimated income and expenditure of the ensuing financial year.
- (E) To deal with all matters, not otherwise provided for in these Rules subject to these being reported to the General Committee at its Annual Meeting.

MEETINGS OF THE EXECUTIVE COMMITTEE

11. (A) There shall be three Statutory Meetings of the Executive Committee—one each at Calcutta, at Delhi and at the venue of the Congress. Additional meetings, as may be necessary, may also be held. Notice of such meetings, along with the Agenda, shall be sent out at least a fortnight before the date of the meeting. Emergency meetings may, however, be convened by the General Secretaries, at the instance of the President, giving a week's notice.
- (B) The ordinary method of voting shall be by show of hands, but on demand, the votes shall be taken by ballot.
- (C) The Chairman shall be entitled to vote. When votes are equal, he shall have a second or casting vote.
- (D) Minutes of the Proceedings of every meeting of the Executive Committee shall be taken during its progress, by one of the General Secretaries, and in case of their absence by one of the members, whom the Chairman may appoint for the purpose. The Minutes shall afterwards be circulated to all members of the Executive Committee.
- (E) Five members shall form a quorum.

GENERAL COMMITTEE

12. There shall be a General Committee consisting of all the Members and Honorary Members of the Association.
13. (A) The Annual Meeting of the General Committee shall be held during each session of the Congress. Fifty one Members shall form the quorum for this meeting. Decisions shall ordinarily be taken by a show of hands of the majority of the Members present and voting at the meeting. Any Member may, however, demand a ballot on any question and the ballot shall be taken at the meeting. In any matter, at the requisition of 26 Members and Honorary Members, the President shall direct that a postal ballot be taken.
- (B) An Emergency Meeting shall be convened to discuss any specific matter during the session of the Congress if a requisition signed by not less than 50 Members and Honorary Members be received by the General Secretary at Head Quarters a fortnight before the commencement of the Session.

COUNCIL

14. (A) There shall be a Council consisting of the members of the Executive Committee, all such Members or Honorary Members of the Association who have held Office as President, General Secretary, or Treasurer, the Sectional Presidents for the Session, seven Members of the Association elected by the General Committee, conveners or secretaries of statutory committees as may be appointed by the General Committee and one member of the Corporation of Calcutta.
- (B) For the election of 7 Members to the Council, any Member or Honorary Member may propose the name of a Member. Such proposal, however, shall be seconded by another Member or Honorary Member and must reach the General Secretary at Head Quarters before the 15th of September. The Executive Committee shall scrutinise these nominations and circulate the valid names, together with such other names, not exceeding three, as it may suggest, to all Members and Honorary Members, for election by ballot. The ballot papers shall be scrutinised by the President or his nominee and such of the General Secretaries as are present at the session and the results of the ballot shall be announced during the session, at the Annual Meeting of the General Committee.
- (C) Eleven members shall form a quorum.
- (D) If any vacancy occurs in the Council after the Annual Session but before the First Statutory Meeting, such a vacancy shall be filled up by the next man in the voting list of the session. In case the vacancy occurs after the First Statutory Meeting the Executive Committee shall fill up such vacancy in the Council by one, preferably from the list of voting stated above.
- (E) Members who have served on the Council for three successive years, shall not be eligible for election as members of the Council for a period of two years thereafter.
15. The Council shall be consulted by the Executive Committee on all important questions of policy or scientific consequence. In the matter of election of Office-bearers, the Council shall exercise such powers as are assigned to it, under the rules.

GENERAL PRESIDENT

16. (A) The Association shall have a General President. He shall be elected annually by the Council from among three names recommended by the members of the Executive Committee. The election shall be by postal ballot. The ballot papers shall be scrutinised by the Executive Committee at a meeting to be held prior to the meeting of the General Committee and the result shall be reported to the General Committee at its annual meeting during the session of the Congress.
- (Note :—The General President shall assume office on the 1st of February and relinquish the same on the 31st January of the succeeding year).
- (B) Powers and Duties of the General President shall be as follows :—
- (a) To preside at all meetings of the Association of the Council, and of the Executive Committee and to regulate the proceedings at such meetings.

- (b) To ensure due effect being given to these Rules and to the Regulations made thereunder.
- (c) In absence of any definite Rule or Regulation on any question likely to arise in connection with the administration of the Association or in the case of a doubt as to the interpretation of any of the Rules and Regulations, the President shall give a decision and his ruling or interpretation shall prevail for the time being.
- (d) He shall be an ex-officio member of all Committees and Boards appointed by the Executive Committee.
- (e) He shall have the power of summoning through the General Secretary at the Head Quarters, a special meeting of the Executive Committee or of the Council, giving a week's notice to all members thereof.

GENERAL SECRETARIES

17. (A) There shall be two General Secretaries from among the Members of the Association, one of whom shall be resident at the Head Quarters of the Association. They shall be elected by a postal ballot by the Council from amongst two names nominated by the Executive Committee for the office of each of the General Secretaries in accordance with the procedure laid down in the Regulations. The election shall be reported to the General Committee at its Annual Meeting, during the Session of the Congress.
- (B) Powers and Duties of the General Secretaries shall be as follows :—
- (a) To conduct the affairs of the Association, in accordance with the Rules and Regulations of the Association, provided always that some of the powers and duties may be delegated, with the consent of the Executive Committee, to other members of the Executive Committee.
 - (b) To record, or cause to be recorded, the proceedings of the meetings of the Association, during their progress.
 - (c) To edit the publications of the Association with the help of a Publication Committee constituted for this purpose by the Executive Committee and to be the custodian of important documents and papers.
 - (d) To exercise general supervision over the salaried staff and all affairs of the Association and to fine or suspend any member of the salaried staff for gross negligence of duty or misconduct, subject to confirmation by the Executive Committee.
 - (e) To delegate some of their powers and duties, by mutual agreement among themselves, to the Local Secretaries during the Annual Session of the Congress.
 - (f) To be ex-officio Members of all Committees and Boards constituted by the Executive Committee.
 - (g) To exercise supervision over exchange or sale of books and other publications of the Association and to report such sales or exchanges to the Executive Committee at the next meeting for information.

TREASURER

- 18 (A) There shall be a Treasurer, elected by the Council by a postal ballot from amongst two names nominated by the Executive

Committee from among the Members of the Association residing at Head Quarters. The election shall be reported to the General Committee at its Annual Meeting during the Session of the Congress.

(B) Powers and Duties of the Treasurer shall be as follows:—

- (a) To receive and hold on behalf of, and for the use of the Association, all moneys received by the Association, to disburse all sums due from the Association and to keep accounts of all such receipts and disbursements. Disbursements exceeding Rs. 200/- shall be made only by order of the Executive Committee under the signature of the Chairman of the meeting at which the order was passed.
- (b) To submit all accounts and vouchers of receipts and disbursements annually to the Executive Committee for examination and also to the auditors when required by them.
- (c) To keep separate accounts of funds, if any, administered by the Association on behalf of Government or any individual or organisation.
- (d) To be an ex-officio member of all Committees and Boards appointed by the Executive Committee.

TERMS OF OFFICE OF GENERAL SECRETARIES AND TREASURER

19. The term of office of each General Secretary and of the Treasurer shall be for a period of three years, following election. A General Secretary or Treasurer shall not be eligible for re-election to the same office for a period of two years after the termination of appointment.
20. In the event of a vacancy amongst the General Secretaries and the Treasurer occurring between two sessions of the Congress, the Executive Committee shall have the power to appoint a General Secretary or the Treasurer for the period upto the termination of the next session of the Congress.

LOCAL SECRETARIES AND RECEPTION COMMITTEE

21. There shall be two or more Local Secretaries for each session of the Congress. They shall be appointed by the Executive Committee in consultation with the Organisation inviting the Congress to hold the session. Not more than two of the Local Secretaries shall be co-opted as members of the Executive Committee, as provided for in Rule 9 (D). All the Local Secretaries shall be either Members or Sessional Members of the Association but the two Local Secretaries co-opted on the Executive Committee, must be Members of the Association.
22. There shall be a Reception Committee for each session of the Congress. The Reception Committee shall be formed in consultation with the Executive Committee in accordance with the Regulations framed for the purpose.

SECTIONAL OFFICERS AND SECTIONAL COMMITTEES

23. (A) For the purpose of scientific deliberations during the session of the Congress, there shall be such sections, corresponding to different branches of science, as may from time to time be constituted by the General Committee on the recommendation of the Council.

(B) It shall be competent for any section, after its first day's meeting at the session, to hold its scientific meetings in sub-sections, for the purpose of dealing conveniently with different groups of papers submitted to the section. To conduct deliberations in each sub-section, a separate chairman and a reporter may be appointed by the Sectional President, in consultation with the Sectional Committee. Persons thus appointed will not, however, be considered as Sectional Officers. In each section, there shall be the following Sectional Officers:—The President, the Recorder, and the Local Sectional Secretary.

24. The President and the Recorder shall be elected by the Sectional Committee from among the Members of the Association, in accordance with the procedure laid down in the Regulations, for the purpose. Where this procedure has not been followed, these appointments shall be made by the Executive Committee, after receiving nominations from the defaulting Sectional Committees. There shall be a Local Sectional Secretary who shall be appointed by the Executive Committee, on the recommendation of the Local Secretaries.

25. (A) The President shall be elected annually. The term of office of the Recorder shall be for a period of three following years, following elections.

(B) The work of each Section shall be conducted by a Sectional Committee which shall consist of the following:—

(a) Sectional Officers (vide Rule 23 (B)).

(b) All Members and Honorary Members of the Association who have been Presidents of the Section or who have served as Recorders for a full term.

(c) Four Ordinary Members of the Association, elected annually by the Members and Honorary Members belonging to that section, in accordance with the Regulations made for the purpose.

(C) The President and the Recorder shall be executive officers of the Section. They shall have power to act on behalf of the Sectional Committee in any matter of urgency, which can not be brought before the Sectional Committee for consideration, but they shall report such action to the Sectional Committee at its next meeting.

(D) The Sectional President shall be convener of the meetings of the Sectional Committee and shall preside over all meetings of the Committee. His ruling shall be final on all points of order that may arise.

In the absence of the President at any meeting of the Sectional Committee the senior-most past President of the Section, present at the meeting, shall take the chair. In the absence of any past President, the Sectional Committee shall elect a Chairman for its meeting.

(E) The Sectional Committee shall meet prior to the first meeting of the Section, and daily thereafter during the session, unless otherwise determined at a meeting of the Sectional Committee.

(F) The Sectional Recorder shall act as the Secretary of the Sectional Committee and shall maintain a proper record of the proceedings of the Sectional Committee and of the Section, in a book provided for the purpose. He shall be responsible for all local arrangements for the work of the Section and for arranging the Sectional Excursions, in consultation with the Local Secretaries.

SUBMISSION OF PAPERS

26. (A) All papers submitted for reading at the session of the Congress shall be forwarded to the General Secretary at Head Quarters so as to reach him not later than the 15th of September preceding the session.
- (B) A paper submitted for reading at any section of the Congress shall be accompanied by an abstract in triplicate not exceeding 200 words. Abstracts, unaccompanied by complete papers, shall not be accepted.
- (C) All papers submitted for reading at a session of the Congress shall be checked by the General Secretary at Head Quarters, in regard to the standing of the authors of the papers as members of the Association. Each paper together with a copy of its abstract shall then be sent by the General Secretary to the Sectional President concerned, for refereeing and acceptance, if found suitable. All reports of referees shall be confidential. The decision of the Sectional President regarding the acceptance of any paper shall be final.
- (D) Each paper shall be accompanied by a declaration that the data and information presented therein will not have appeared in print before the conclusion of the session of the Congress at which it is to be read.
- (E) Abstracts of only the papers received by the General Secretary at the Head Quarters on or before the 15th of September, and accepted for reading at the session, shall be printed in Part III of the Proceedings. *In very exceptional circumstances*, however, abstracts of papers received after the due date may be printed in Part IV, provided that such papers have been read at the Section and the publication of their abstracts has been specially recommended by the Sectional President.

PUBLICATION OF PROCEEDINGS

27. The Proceedings of the Indian Science Congress Association shall be published in one volume, in four separate parts, as follows :—

Part I Contents :—List of Officers, Proceedings of the Inaugural meeting of the Session (Except the General Presidential Address) and all Official matters.

Part II ,, All Presidential Addresses.

Part III ,, Abstracts of papers accepted for reading at the Session, in accordance with Rule 26E.
(Note :—This part shall be distributed before the session to all Members, Honorary Members and Sessional Members of the Association).

Part IV ,, Discussions held at the session, Late Abstracts (accepted for publication in accordance with Rule 26E), List of Members of the Association and the Index.

(Note :—Parts I to IV shall be distributed to all Members, Honorary Members and Sessional Members).

CHANGE OF RULES

28. The following procedure shall be observed for making any addition to, or alteration in, the Rules of the Association :—
- (A) Proposal for additions to, or alteration in, the existing Rules may be made by the Executive Committee, the Council, the Members or the Honorary Members of the Association. Such proposals, along with amendments, if any, and the opinions thereon, of the Executive Committee and the Council, shall be placed before the General Committee for its consideration, at its Annual Meeting, during the session of the Congress.
 - (B) The General Committee shall have at least one month's previous notice of the proposals made by the Executive Committee or by the Council. At least six weeks' previous notice of proposals made by Members or Honorary Members shall be given to the General Committee.
 - (C) Proposals by Members or Honorary Members shall be sent to the General Secretary at Head Quarters so as to reach him at least two months before the meeting of the General Committee at which they are to be considered. The General Secretary at Head Quarters shall circulate such proposals to all Members and Honorary Members of the Association, at least six weeks before the meeting of the General Committee.
 - (D) Any amendments to the proposals circulated in accordance with Rule 28 (C) shall be sent by Members or Honorary Members to the General Secretary at Head Quarters so as to reach him at least a month before the meeting of the General Committee. Amendments to proposals from the Executive Committee or the Council shall reach the General Secretary at Head Quarters, at least two weeks before the meeting of the General Committee.
 - (E) At the meeting of the General Committee, the voting on such proposals and amendments, shall be in accordance with Rule 13 (A) and the proposals shall be accepted if not less than two-thirds of the number of members present and voting, cast their vote in favour of the proposals.

REGULATIONS

I. ELECTION OF GENERAL PRESIDENT (RULE 16A)

(1) The General Secretary at Headquarters shall invite nominations for the office of the General President of the Association by a circular letter to the members of the Executive Committee not later than the 1st August. Such circular shall include a list of the General Presidents of the past 15 years, and the branches of science in which they had specialised.

Nomination shall reach the General Secretary at Headquarters not later than 1st September.

(2) The General Secretary at Headquarters shall circulate the nominations received to the members of the Executive Committee for expression of opinion by 7th September. Such opinions shall reach the General Secretary at Headquarters not later than the 25th September.

(3) The nominations, together with the views of members thereon, shall be placed for selection of *three* names before a Statutory Meeting of the Executive Committee to be held in October.

(4) The *three* names thus selected shall be circulated by the 15th November to the members of the Council for election of the President by postal ballot. The ballot paper shall reach the General Secretary at Headquarters not later than 15th December.

(5) These ballot papers shall be scrutinised as the President may direct at a Statutory Meeting of the Executive Committee to be held on the day previous to the commencement of the Session of the Congress. The result of the scrutiny shall be announced by the President in the meeting.

(6) The result shall be reported to the General Committee at its Annual Meeting during the Session of the Congress.

(7) In the case of elected President expressing his inability to preside before the first Statutory Meeting of the Executive Committee, the office shall be filled by the next person on the panel. Thereafter, the Past-President or in his absence any one of the Past-Presidents will be invited by the Executive Committee to be President of the Congress for the year.

II. ELECTION OF GENERAL SECRETARIES AND TREASURER (RULES 17A & 18A)

(1) The General Secretary at Headquarters shall invite nominations for the offices of the General Secretaries and Treasurer of the Association by a circular letter to the members of the Executive Committee not later than the 1st August.

Nominations shall reach the General Secretary at Headquarters not later than 1st of September.

(2) The General Secretary at Headquarters shall circulate the nominations received to the members of the Executive Committee for expression of opinion by 7th September. Such opinion shall reach the General Secretary at Headquarters not later than the 25th September.

(3) The nominations together with the views of members thereon shall be placed for selection of *two* names for each of the office at a Statutory Meeting of the Executive Committee to be held in October.

(4) The *two* names thus selected shall be circulated by the 15th of November to the members of the Council for election of each of the offices by postal ballot. The ballot papers shall reach the General Secretary at Headquarters not later than the 15th December.

(5) These ballot papers shall be scrutinised as the President may direct at a Statutory Meeting of the Executive Committee to be held on the day previous to the commencement of the Session of the Congress. The result of the scrutiny shall be announced by the President in the meeting.

(6) The election shall be reported to the General Committee at its Annual Meeting during the Session of the Congress.

(7) In the case of any vacancy in between two Sessions of the Congress, the Executive Committee shall have the power to appoint these officers for the period upto the termination of the next Session of the Congress.

III. PUBLICATION COMMITTEE

According to Rule 17B (c) and in order to help the General Secretary in editing the Publication of the Association a Publication Committee, consisting of one member of each of the sectional Committees of the year resident in Calcutta, preferably President or Recorder or elected member of the Sectional Committee will be constituted.

In cases of non-availability of any of the above members of any section, the senior Past-President of the section will be co-opted.

IV. THE FORMATION OF THE RECEPTION COMMITTEE (RULE 22)

(1) The General Secretaries and the Treasurer of the Indian Science Congress Association shall be ex-officio members of the Local Reception Committee.

(2) The Treasurer of the Indian Science Congress Association shall be ex-officio members of the Local Reception Committee.

(3) The Treasurer of the Indian Science Congress Association shall be an ex-officio member of the Working Committee of the Local Reception Committee.

(4) The Treasurer of the Indian Science Congress Association and a nominee of the Executive Committee shall be members of the Finance Committee of the Local Reception Committee.

V. ELECTION OF SECTIONAL PRESIDENTS, RECORDERS AND MEMBERS
(RULES 24 AND 25)

General :

(1) Only Members of the Indian Science Congress Association are eligible for being nominated or elected as President, Recorder or Members of a Sectional Committee.

(2) Each Member of the Association may designate one Section in which he wishes to be enrolled and may designate two additional Sections in which he is interested.

Persons who do not designate the section in which they wish to be enrolled, will not be entitled to vote for the election of members of the Sectional Committees.

(3) No person shall serve concurrently in more than one Sectional Committee.

(A) Officers :

The President shall be elected annually, while the Recorder will hold office for three years from the date of his election.

Early in October, copies of printed form will be issued to Presidents of Sections for circulation to members of the Sectional Committee requesting them to nominate a President and a Recorder (when the office is vacant) for the ensuing meeting. Such nominations shall be accompanied by a statement of qualifications of the nominees for the office and their willingness to accept the same if elected thereto.

By the 15th of November, the President of each section shall circulate to the members of the Sectional Committee all such nominations received by him, together with brief statements of their qualifications and request them to vote by ballot one member for each office.

The election of Presidents and Recorders shall be through the system of single transferable vote.

The ballot papers shall be opened at the first meeting of the Sectional Committee and scrutinised as the Chairman shall direct.

The result of voting shall be communicated to the General Secretaries, together with a complete record of the Proceedings of the Sectional Committee taken in this connection. In case a vacancy occurs after such election, the Executive Committee shall select one member, from the list of nominations received from the Sectional Committee, to fill the vacated post.

(B) Members of the Sectional Committee :

At the first meeting of the Section held during the session, members of the Section, and noted in the list of Members circulated present will be asked to propose the names of the persons to serve as members of the Sectional Committee during the ensuing year. In proposing names care

should be taken to have the various branches of science included in the section and the various geographical regions represented as far as possible.

At the second meeting of the Section, the Chairman will write the names of the proposed candidates on the black board in alphabetical order ; additional nominations at the meeting will also be permitted. Members will vote by ballot.

The four persons receiving the largest number of votes after scrutiny will be declared elected and their names communicated to the Executive Committee for announcement at the annual meeting of the General Committee. In case of a vacancy during the year, the vacancy may not be filled up, if not, otherwise specially desired by the Executive Committee.

VI. ADDRESSES OF SECTIONAL PRESIDENTS

(1) The Sectional President delivers a Presidential Address of which ordinarily the cost of printing 16 pages of the Proceedings in its usual form shall be borne by the Indian Science Congress Association and any author exceeding the limit shall bear the extra cost provided that in no case the presidential address shall exceed 25 pages. The time available for delivery of the Presidential Address shall usually not exceed 45 minutes. The manuscript of the address, ready for the press, should be received by the General Secretary before October 15th of the calendar year preceding the Session of the Congress at which the address will be delivered, provided that this date may be changed by the Executive Committee for special reasons. It should be accompanied by 12 copies of a short popular summary (about 500 words) for issue to the lay press. The time and date of the delivery of the President's Address will be communicated before the meeting of the Congress. No two Presidential Addresses will be delivered at the same time.

(2) The President shall be entitled to receive 30 copies of his address without charge, and additional copies at the cost of reprinting.

(3) Railway fares, postage, clerical or other expenses incurred by the Sectional Presidents will not be paid by the Association.

VII. PROCEDURE FOR COLLECTION OF PAPERS FOR THE SECTIONS

About the middle of April a number of copies of a printed circular will be forwarded to the President of each Section who may arrange to send these to workers in that branch of science with which his Section is concerned, requesting them to contribute papers for reading before the next meeting of the Congress.

The circular will contain a clause inviting such workers as are not yet Members of the Association to join as such.

In case of joint papers, each author must be a Member of some category.

VIII. APPLICATIONS FOR MEMBERSHIP

Applications for membership will ordinarily be dealt with by the General Secretary at the Office of the Association up to the 15th December. After that date applications for membership will be forwarded to the Local Secretaries, who will open a separate account for sale of membership tickets. The amount thus realized, together with unsold tickets, should be forwarded to the General Secretary immediately after the close of the Congress.

STATEMENT OF ACCOUNTS

INDIAN SCIENCE CONGRESS

Balance Sheet as at

FUND & LIABILITIES		Rs.	As.	P.	Rs.	As.	P.
<i>General Fund :</i>							
As per last accounts ...	...	50,162	3	1			
Add Balance from Income and Expenditure Account ...	...	8,915	14	0			
		59,078	1	1			
Add Excess of Government Grant over Expenditure on Foreign Scientist Account ...	...	2,692	9	6			
		61,770	10	7			
Add Last Year's Outstanding Liabilities now adjusted ...	...	6,000	0	0			
					67,770	10	7
<i>Reserve Fund :</i>							
As per last accounts ...	...	28,505	9	4			
Add Interest earned this year ...	...	560	0	0			
		29,065	9	4			
Less Bank Charges ...	...	2	0	0			
		29,063	9	4			
Add Life Membership Fee ...	...	1,262	8	0			
					30,326	1	4
Staff Provident Fund ...	...				2,445	1	3
<i>Building Fund :</i>							
As per last accounts ...	...	19,486	15	9			
Add Transferred from Membership subscription ...	...	3,599	6	0			
					23,086	5	9
Liabilities Outstanding ...	...				225	0	0
					Rs. 1,23,853	2	11

ASSOCIATION.

31st March, 1954.

PROPERTY & ASSETS			Rs.	As.	P.	Rs.	As.	P.
Furniture & Fittings:								
As per last accounts	...	...	3,101	11	6			
Less Depreciation	...	...	186	1	6			
						2,915	10	0
Typewriter:								
As per last accounts	...	...	2,339	12	6			
Less Depreciation	...	...	257 ¹	6	0			
						2,082	6	6
Advance	...	...				9,665	2	9
K. L. M. Air Advance:								
As per last accounts	...	...				3,705	8	0
Reserve Fund Investment:								
4% Loan 1960-70 (F.V. Rs. 12,500/-) ; Victory Loan 1959-61 (F.V. Rs. 2,000/-) ; Post Office 12 years N. S. C. (F.V. Rs. 5,000/-) as held and certified by the Imperial Bank of India						21,288	3	5
Imperial Bank of India (Current Account)	...	...	7,775	5	11			
						29,063	9	4
Staff Provident Fund Investment:								
Imperial Bank of India, Savings Account	...	...				2,445	1	3
Building Fund Investment:								
3% Conversion Loan (F.V. Rs. 15,900/-)						12,955	7	0
Imperial Bank of India, Current Account	...	...	2,439	7	9			
						15,394	14	9
Cash-in-hand	...	...	75	0	0			
Cash at Bank:								
Imperial Bank of India, Current Account	...	...	58,505	14	4			
						58,580	14	4
						Rs. 1,23,853	2	11

We have audited the above Balance Sheet of the INDIAN SCIENCE CONGRESS ASSOCIATION as at 31st March, 1954 and the annexed Income and Expenditure Account and also the Statement of Expenditure on Foreign Scientists for the year ending 31st March, 1954 with the books and vouchers of the Association and have obtained all the informations and explanations we have required. In our opinion the Balance Sheet and the Income and Expenditure Account are properly drawn up and the Balance Sheet exhibits a true and correct view of the affairs of the Association as on that date according to the best of our information and explanations given to us and as shown by the books of the Association.

2, Church Lane, Calcutta 1,
Dated the 27th July, 1954.

Sd./- PAL & ROY,
Chartered Accountants.

INDIAN SCIENCE CONGRESS

Income and Expenditure Account for

EXPENDITURE			Rs.	As.	P.	Rs.	As.	P.
To Establishment	...	...	10,237	0	0			
„ Telephone	...	...	402	12	0			
„ Postage	...	...	5,117	10	0			
„ Printing	...	...	14,120	6	0			
„ Stationery	...	...	10,895	6	9			
„ Rent	...	...	900	0	0			
„ Travelling Allowance	...	...	4,293	1	6			
„ Contingency	...	...	655	14	3			
„ Audit Fees	...	...	200	0	0			
„ Miscellaneous	...	...	676	4	0			
„ Bank Charges	...	...	126	7	3			
„ Contribution to Provident Fund	...	...	300	6	0			
						47,925	3	9
„ Depreciation on Furniture and Fittings @ 6% approx.	...	...	186	1	6			
„ Typewriter @ 11% approx.	...	...	257	6	0			
						443	7	6
„ Balance being Excess of Income over Expenditure c/d.	...	...				13,777	12	0
						Rs. 62,146	7	3
To Transferred to Reserve Fund	...	...				1,262	8	0
„ Transferred to Building Fund	...	...				3,599	6	0
„ Balance transferred to General Fund	...	...				8,915	14	0
						Rs. 13,777	12	0

FOREIGN SCIENTIST

Statement of Government Grant and Expenditure,

			Rs.	As.	P.
To Car Expenses	...	...	4,255	1	6
„ Hotel Charges	...	...	10,564	13	6
„ Air Fare	...	...	5,041	4	0
„ Air Freight	...	...	730	5	0
„ Travelling	...	...	3,469	12	6
„ Tea and Tiffin etc.	...	...	503	4	3
„ Miscellaneous	...	...	1,690	1	9
„ Excess of Government Grant over Expenditure transferred to General Fund	...	...	2,692	9	6
			Rs. 28,947	4	0

ASSOCIATION.*the year ending 31st March, 1954.*

<i>INCOME</i>		Rs.	As.	P.	Rs.	As.	P.
By Membership Subscription	...	35,994	4	0			
„ Life Membership Subscription	...	1,262	8	0			
„ Publication	...	2,587	7	3			
„ Government Grant	...	22,000	0	0			
„ Grant from N.I.S.I.	...	250	0	0			
„ Miscellaneous	...	52	4	0			
					62,146	7	3

 Rs. 62,146 7 3

By Balance b/d.	...	...	...	13,777	12	0
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 Rs. 13,777 12 0

ACCOUNT*Forty-First Session as at 31st March, 1954.*

					Rs.	As.	P.
By Government Grant	...	...	...	...	25,000	0	0
„ Government Grant for B.A.A.S.	...	...	...	...	3,947	4	0

 Rs. 28,947 4 0

Sd./- PAL & ROY,
Chartered Accountants.

INDIAN SCIENCE CONGRESS*Budget Estimate for***EXPENDITURE****Rs. As. P.**

To Establishment with allowances	...	...	15,000	0	0
„ Provident Fund	...	...	500	0	0
„ Audit Fee	...	...	200	0	0
„ Printing (inclusive of Binding)	...	...	16,000	0	0
„ Rent and Taxes	...	...	1,125	0	0
„ Telephone	...	...	410	0	0
„ Postage	...	...	5,300	0	0
„ Paper and Stationery	...	...	13,200	0	0
„ Contingency & Local conveyance	...	...	700	0	0
„ Travelling allowances	...	...	6,000	0	0
„ Sessional expenses	...	...	6,000	0	0
„ Miscellaneous and Bank charges	...	...	850	0	0
„ Reserve Fund—Life Membership fee	...	...	2,000	0	0
„ Reserve Fund—Building (Local Committee)	...	...	3,000	0	0

 Rs. 70,285 0 0

ASSOCIATION.*the year 1954-55.**INCOME*

Rs. As. P.

By Membership subscription	...	...	...	36,000	0	0
„ Publication	...	...	...	1,500	0	0
„ Life Membership	...	...	...	2,000	0	0
„ Miscellaneous Receipt	...	...	...	100	0	0
„ Grant from N. I. S. I.	...	...	...	250	0	0
„ Central Govt. Grant (expected)	...	...	...	22,000	0	0
„ Deficit on a/c. of Expenditure being higher than Income	...	...	...	8,435	0	0

 Rs. 70,285 0 0

PROCEEDINGS OF THE PAST SESSIONS OF INDIAN SCIENCE CONGRESS

								Rs.	as.	P.
1st Session	1914,	Calcutta	...	...	...	...	...	0	12	0
2nd "	1915,	Madras	...	...	...	...	...	1	8	0
3rd "	1916,	Lucknow	...	...	...	...	...	2	10	0
4th "	1917,	Bangalore	...	...	...	...	...	2	4	0
5th "	1918,	Lahore	...	...	...	...	...	5	10	0
6th "	1919,	Bombay	...	...	...	...	...	3	0	0
7th "	1920,	Nagpur	...	...	...	...	...	3	12	0
8th "	1921,	Calcutta	...	...	...	...	...	4	14	0
9th "	1922,	Madras	...	...	...	...	...	5	4	0
10th "	1923,	Lucknow	...	...	...	...	...	7	8	0
11th "	1924,	Bangalore	...	...	...	...	...	6	12	0
12th "	1925,	Banaras	...	...	...	...	...	9	0	0
13th "	1926,	Bombay	...	...	...	...	...	12	6	0
14th "	1927,	Lahore	...	...	...	...	...	9	12	0
15th "	1928,	Calcutta	...	...	...	...	...	12	12	0
16th "	1929,	Madras	...	...	...	...	...	12	0	0
17th "	1930,	Allahabad	...	...	...	...	...	15	0	0
18th "	1931,	Nagpur	...	...	...	...	...	13	14	0
19th "	1932,	Bangalore	...	...	...	...	...	18	12	0
20th "	1933,	Patna	...	...	...	...	...	17	4	0
21st "	1934,	Bombay	...	...	...	...	...	12	12	0
22nd "	1935,	Calcutta	...	...	...	...	...	15	0	0
23rd "	1936,	Indore	...	...	...	...	...	18	0	0
24th "	1937,	Hyderabad	...	...	...	...	...	16	8	0
25th "	1938,	Calcutta	...	...	...	...	...	30	0	0
26th "	1939,	Lahore	...	...	...	...	...	20	0	0
27th "	1940,	Madras	...	...	...	...	...	27	6	0
28th "	1941,	Banaras	...	...	...	...	...	30	4	0
29th "	1942,	Baroda	...	...	...	...	...	25	8	0
30th "	1943,	Calcutta	...	...	...	...	...	19	8	0
31st "	1944,	Delhi	...	...	...	...	...	18	0	0
32nd "	1945,	Nagpur	...	...	...	...	...	18	4	0
33rd "	1946,	Bangalore	...	...	...	...	...	21	4	0
34th "	1947,	Delhi	...	...	...	...	...	23	2	0
35th "	1948,	Patna	...	...	...	...	...	23	0	0
36th "	1949,	Allahabad	...	...	...	...	...	21	12	0
37th "	1950,	Poona	...	...	...	...	...	23	12	0
38th "	1951,	Bangalore	...	...	...	...	...	27	12	0
39th "	1952,	Calcutta	...	...	...	...	...	32	6	0
40th "	1953,	Lucknow	...	...	...	...	...	36	0	0
41st "	1954,	Hyderabad (Deccan)	...	...	...	...	...	28	0	0

